developmental disabilities

ABSTRACTS

DEVELOPMENTAL DISABILITIES OFFICE



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Journal Sources

Acta Neuropathologica (Berlin)
Acta Paediatrica Scandinavica (Stockholm)
Acta Paedopsychiatrica (Basel)
Adolescence
American Journal of Clinical Pathology
American Journal of Community Psychology
American Journal of Correction
*American Journal of Diseases of Children**
American Journal of Human Genetics
American Journal of the Medical Sciences
*American Journal of Mental Deficiency**
*American Journal of Obstetrics and Gynecology**
American Journal of Occupational Therapy
*American Journal of Orthopsychiatry**
*American Journal of Psychiatry**
American Rehabilitation
*Annales Medico-Psychologiques (Paris)**
Annals of Human Genetics (London)
*Archives of Disease in Childhood (London)**
*Archives of General Psychiatry**
*Archives of Neurology**
*Australian Journal of Mental Retardation (Victoria)**
Behavior Genetics
Behavior Modification
Behavior Research and Therapy (London)
Behavior Therapy (Edinburgh)
British Journal of Educational Psychology (Edinburgh)
*British Journal of Mental Subnormality (Birmingham)**
British Journal of Psychiatry (London)
British Journal of Psychology (London)
*British Medical Journal (London)**
Bulletin of the Psychonomic Society
Challenge
Child Psychiatry Quarterly (Hyderabad)
*Child Welfare**
*Children**
*Children Today**
*Clinical Genetics**
*Clinical Pediatrics**
*Clinical Proceedings Children's Hospital National Medical Center**
Contemporary Educational Psychology
Developmental Medicine and Child Neurology
Dissertation Abstracts International
*Early Human Development**
*Education and Training of the Mentally Retarded**
Elementary School Journal
*ERIC Resources in Education**
*Exceptional Children**
Exceptional Parent
*Family Law Quarterly**
*Hastings Center Report**
Health and Social Service Journal (London)
Health and Social Work
Health Facilities Court Digest
Heilpaedagogische Forschung (Berlin)
*Hospital and Community Psychiatry**
Hospital Physician
Human Genetics
Human Heredity (Basel)
Innovations
*International Child Welfare Review (Geneva)**
International Journal of Mental Health
Irish Medical Journal (Dublin)
Japanese Journal of Child Psychiatry (Tokyo)
Journal for Special Educators of the Mentally Retarded
Journal of Abnormal Psychology
*Journal of the American Academy of Child Psychiatry**
*Journal of the American Medical Association**
Journal of Applied Behavior Analysis
*Journal of Autism and Childhood Schizophrenia**
Journal of Behavior Therapy and Experimental Psychiatry (Oxford)
Journal of Biosocial Science (Oxford)
Journal of Child Psychology and Psychiatry (Oxford)
*Journal of Clinical Child Psychology**
Journal of Clinical Psychology
Journal of Community Psychology
Journal of Consulting and Clinical Psychology
Journal of Counseling Psychology
Journal of Education for Social Work
*Journal of Family Law**
*Journal of Learning Disabilities**
Journal of Marriage and Family Counseling
*Journal of Medical Genetics (London)**
*Journal of Mental Deficiency Research (London)**
Journal of Neuropathology and Experimental Neurology
*Journal of Pediatrics**
Journal of Perinatal Medicine

Journal of Rehabilitation
Journal of Rehabilitation in Asia (Bombay)
*Journal of School Health**
*Journal of Special Education**
*Juvenile Court Digest**
*Juvenile Justice**
*Lancet (London)**
Law and Behavior
*Mental Disability Law Reporter**
*Mental Health Court Digest**
Medical Journal of Australia (Glebe)
*Mental Retardation**
Nature (London)
Neurology
*New England Journal of Medicine**
New Society (London)
New Zealand Medical Journal (Dunedin, N.Z.)
Nursing Mirror and Midwives Journal (Surrey)
Nursing Times (London)
Nutrition and Metabolism
Obstetrics and Gynecology
Parents Voice (London)
*Pediatric Research**
*Pediatrics**
Perceptual and Motor Skills
Personnel and Guidance Journal
Practitioner (London)
Psychological Reports
Psychology
Psychology in the Schools
Public Health (London)
Public Welfare
Reading Research Quarterly
Rehabilitation Literature
School Psychology Digest
Science
Social and Rehabilitation Record
*Social Casework**
Social Policy
*Social Work**
Social Work Today (Birmingham)
*Southern Medicine**
Special Education: Forward Trends (London)
*Teaching Exceptional Children**
*Texas Reports on Biology and Medicine**
*Zeitschrift fuer Kinder- und Jugend-psychiatrie (Vienna)**

*Scanned on a regular basis.

Books Abstracted In This Issue*

Cleland, Charles Carr. *Mental Retardation: A Developmental Approach*. Englewood Cliffs, New Jersey: Prentice-Hall, 1978.

Das, J. P.; & Baine, David, *Mental Retardation for Special Educators*. Springfield, Illinois: Charles C Thomas, 1978.

Feingold, Barbara A.; & Bank, Caryl L., eds. *Developmental Disabilities of Early Childhood*. Springfield, Illinois: Charles C Thomas, 1978.

Frostig, Marianne. *Education for Dignity*. New York: Grune & Stratton, 1976.

Gibson, David; & Brown, Ray I. *Managing the Severely Retarded*. Springfield, Illinois: Charles C Thomas, 1976.

Ingalls, Robert P. *Mental Retardation: The Changing Outlook*. New York: John Wiley & Sons, 1978.

Lubs, Herbert A.; & de la Cruz, Felix. *Genetic Counseling*. New York: Raven Press, 1977.

Mauser, August J. *Assessing the Learning Disabled: Selected Instruments*. San Rafael, California: Academic Therapy Publications, 1977.

Menolascino, Frank J. *Challenges in Mental Retardation: Progressive Ideology and Services*. New York: Human Sciences Press, 1977.

O'Connor, Gail. *Home Is a Good Place*: A national perspective of community residential facilities for developmentally disabled persons. Monograph of the American Association of Mental Deficiency, Number 2, Washington, D.C.: American Association on Mental Deficiency, 1976.

President's Committee on Mental Retardation. *MR 76: Mental Retardation: Past and Present*. Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office 20402, January 1977. Stock No. 040-000-00385-1.

Rosen, Marvin; Clark, Gerald R.; & Kivitz, Marvin S. *Habilitation of the Handicapped: New Dimensions in Programs for the Developmentally Disabled*. Baltimore: University Park Press, 1977.

Ross, Alan O. *Learning Disability: The Unrealized Potential*. New York: McGraw-Hill Book Company, 1977.

Webster, Elizabeth J., ed. *Professional Approaches with Parents of Handicapped Children*. Springfield, Illinois: Charles C Thomas, 1976.

Wortis, Joseph, ed. *Mental Retardation and Developmental Disabilities: An Annual Review*. New York: Brunner/Mazel, 1977.

U.S. Health, Education and Welfare Department. Public Health Service. Alcohol, Drug Abuse, and Mental Health Administration, National Institute of Mental Health. *Detection and Prevention of Learning Disorders*. (Yahraes, Herbert; & Prestwick, Sherry) Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1976. DHEW Publication No. (ADM) 76-337.

*A complete list of books abstracted in Volume 13 will appear in Issue No. 4.

BROAD ASPECTS OF DEVELOPMENTAL DISABILITIES

1741 **FEINGOLD, BARBARA A.; & BANK, CARYL L., eds.** *Developmental Disabilities of Early Childhood.* Springfield, Illinois: Charles C Thomas, 1978, 195 p. (Price unknown.)

Papers based on proceedings from a professional conference cosponsored by the Little Village School for Developmentally Disabled Children (Merrick, New York) and Sagamore Children's Center (Melville, New York) in April 1976 are presented. The interprofessional cooperation necessary for successful intervention in developmental disabilities is emphasized, and new importance is attributed to family involvement.

CONTENTS: Early Intervention in Developmental Disabilities: A Job for Everyone (Hagamen); An Introduction to Developmental Disabilities (Chess); A Model Eclectic Program for the Education of Young Developmentally Disabled Children (Bank; Feingold; & Genn); Learning Disabilities: The Role of the Pediatrician; Evaluations of Patients and Families (Cobrinik); Genetics and the Handicapped Child (Davis); The Value of Resource Rooms and Itinerant Teaching: A Place on the Continuum (Lazarus); Multifamily Therapy (Lurie); Children at Risk for Psychopathology (Weintraub & Neale); Megavitamins and Diet (Hitchings); Teaching Parents to Teach Their Children: The Behavior Modification Approach (Kaufman); Closing the Parent-Professional Gap: Toward a Better Working Relationship with Parents of Developmentally Disabled Children (Grossman); A Total Milieu Approach to Handicapped Infant Education (Salant); Biofeedback with Young Cerebral Palsied Children (Silverstein); Language-Disordered Children: A Neuropsychologic View (Wilson & Wilson); A Community Psychology Approach to Developmental Disabilities (Cohen).

1742 **DAS, J. P.; & BAINE, DAVID, eds.** *Mental Retardation for Special Educators.* Springfield, Illinois: Charles C Thomas, 1978, 318 p. (Price unknown.)

A variety of theoretical and practical approaches to the problem of MR is presented. The topics reviewed include basic psychological processes, practical applications of multidisciplinary knowledge, and genetic considerations.

CONTENTS: Genetic Factors in Mental Retardation (Bowen); Attention (Das); Learning (Bower); Memory and Rehearsal (Lawson); Intelligence: Its Nature and Measurement (Tymchuk); Language Behavior of Moderately Mentally Retarded Children (Leong); The Disadvantaged Child (Das); Functional Diagnosis of Mentally Retarded Children (Leong); Applied Behavior Analysis and Developmental Handicaps (Kysela & Hillyard); Criterion Referenced Testing and Instruction (Baine); Reading and the Mentally Handicapped (Fagan); Mental Retardation: The Labelling Perspective (Dokecki); Normalization, Integration, and Socialization (Marlett); Vocational Training and the Mentally Handicapped (Brown).

1743 **INGALLS, ROBERT P.** *Mental Retardation: the Changing Outlook.* New York, New York: John Wiley & Sons, 1978, 491 p. (Price unknown.)

The progress made in changing public attitudes towards and increasing understanding of MRs is reviewed. An underlying theme is the denial that there is a specific psychology of MR, in the hope of abolishing the myth that the MR are a unique group different from everyone else.

CONTENTS: Labels, Labeling, and the Mentally Retarded; Intelligence and Intelligence Testing; What Is Mental Retardation?; A Brief History of Mental Retardation; Biological Causes of Mental Retardation; Brain Damage and Related Conditions; Poverty, Race, and Mental Retardation; Learning and Memory in the Mentally Retarded; Language and Mental Retardation; Cognitive Development in the Retarded: Piaget's Theory; Personality and Social Psychology of Mental Retardation; Treatment of Behavioral and Emotional Problems; The Family of the Retarded Child; Education of the Mildly Retarded Child; Education of the Moderately or Severely Retarded Child; Preschool Programs for the Retarded; The Mentally Retarded Adult; The Spirit of the Times.

1744 **INGALLS, ROBERT P.** Labels, labeling, and the mentally retarded. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook.* New York, New York: John Wiley & Sons, 1978, p. 1-15.

It is easy to think of MRs as being very different sorts of people from those who are considered normal, but this is not entirely true. In most characteristics, most MRs do not differ in important ways from everyone else. MR, rather than being a condition qualitatively different from normalcy, is on a continuum with it, and whether a given individual is labeled MR or not is often somewhat arbitrary. MR is not a unitary condition but refers to a very general category of people with little in common except the fact that they perform poorly on intelligence tests and in school. There is disagreement not only on the subject of who is MR and who is not, but also on the very definition of MR and even on whether or not the concept of MR itself is a useful one. There is no such thing as a specific psychology of MR. There are very few educational practices which are unique to MRs and, indeed, very few therapeutic procedures of any kind which apply to MRs but not to nonMRs. While it may be damaging to label a particular child as MR, the category is still needed for administrative and research purposes.

1745 **INGALLS, ROBERT P.** What is mental retardation? In: Ingalls, R. P. *Mental Retardation: the Changing Outlook.* New York, New York: John Wiley & Sons, 1978, p. 53-82.

MR is frequently misunderstood, not only by the general public but all too often by professionals as well. Traditional attempts to define MR have fallen into 3 categories: definitions based upon intelligence test scores, definitions based upon a failure of social performance, and definitions based upon the cause or essential nature of MR, such as brain damage. The most widely accepted definition of MR today is that adopted by the American Association on Mental Deficiency, and it represents a combination of the first 2 approaches. This definition makes no mention of cause, and it does not designate MR as a permanent condition. Most studies of the prevalence of MR conclude that approximately 3 percent of the population of the United States is MR. Some researchers feel that this figure is too high, however, since the majority of these 3 percent represent the relatively MR, those people who are handicapped in situations where demands of an academic nature are made but who can function adequately otherwise. The prevalence of MR varies considerably within different segments of the population. MR is found more often among males, among children of school age, and among low-income families and racial minorities.

1746 **INGALLS, ROBERT P.** A brief history of mental retardation. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook.* New York, New York: John Wiley & Sons, 1978, p. 85-100.

Great progress has been made in the field of MR since the condition was first described. Prior to the early 1800's there were virtually no programs for MRs or other handicapped people, but in the early nineteenth century a number of pioneers developed a special interest in securing better treatment for MRs. Among them were Jean Itard, Edouard Seguin, and Samuel Howe. For the next hundred years or so, the center of services for MRs was the state residential institution. During much of this time, a major theme in social thought was "Social Darwinism," the application of Darwin's theory of the survival of the fittest to human society. Thus, MRs were considered to be a threat to the future of the species. Negative attitudes towards MRs began to change slowly as scientists discovered more about the nature of MR. Also, during the Depression there was a shift in national attitudes towards the idea that the government ought to help its less fortunate citizens. As a result, services for MRs grew rapidly after World War II. The

federal government began to fund programs for MRs on a massive scale in the 1960's, and the 1970's have been marked by landmark court decisions affirming the basic rights of MRs.

1747 **INGALLS, ROBERT P.** The spirit of the times. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook.* New York, New York: John Wiley & Sons, 1978, p. 441-451.

The 1960's and 1970's have witnessed an explosive growth in services for MRs, but these services have come about only as a result of a number of fundamental shifts in the attitudes of society towards the handicapped. There has been an emphasis on the similarities between MRs and nonMRs rather than on their differences, and a recognition that MRs can improve their level of functioning if given a proper opportunity. The very concept of MR has been questioned, and labeling has been deemphasized. In addition to increased individualization, there has been an expansion of legal rights for MRs and an increased tolerance of deviance. The traditional view of intelligence as something constitutional and unchanging, determined largely by genetic background, has been gradually eroded by the discovery that the conditions in which children are raised can have a considerable impact on their mental abilities. While MR is no longer defined as an incurable condition, it is recognized that it is much easier to prevent than to cure it, and numerous programs aimed at preventing intellectual deficits and other developmental disabilities have sprung up. In general, a much wider variety of services has become available to the handicapped.

1748 **CLELAND, CHARLES CARR.** *Mental Retardation: A Developmental Approach.* Englewood Cliffs, New Jersey: Prentice-Hall, 1978, 375 p. (Price unknown.)

A holistic view of the phenomenon of MR and of MRs is presented, with emphasis on the developmental approach as one of the best methods currently available for detecting and analyzing those factors which regulate behavior and for revealing the interaction among them. The stages of human development and the intervention strategies used with MRs are discussed, and reflections are made on progress in the field of MR.

CONTENTS: Introduction; Prenatal Life and Infancy; Childhood; Adolescence; Adulthood; Old Age; Residential Care; Community Living: Rights, Responsibilities and Problems; Neglected Retardates; Clinical Syndromes in Mental Retardation and Multihandicapping Conditions; The Public School and Mental Retardation; Historical Issues; Societal Responsibilities and Recent Developments; Research Problems and Needs; Current Issues: Labelling, Testing, Placement, and Litigation; Market Research: An Approach to the Mentally Retarded Consumer; Future Issues.

1749 **CLELAND, CHARLES CARR.** Introduction. In: Cleland, C. C. *Mental Retardation: A Developmental Approach.* Englewood Cliffs, New Jersey: Prentice-Hall, 1978, p. 3-32.

Progress in the field of MR, a condition which is thought to influence between 6 and 7 million United States citizens directly and many thousands of people who teach, treat, or do research with MRs or have MR relatives, has been striking. Variously, from ancient times to the end of the Renaissance, superstition, mythology, religion, fear, and diverse social aims created a plethora of treatments for MRs, ranging from infanticide, flagellation, and incarceration to worship, protection, and tender care. With the Renaissance came a dissolution of much of the superstitious thinking characteristic of the medieval period, and hope and interest in MRs were sparked by philosophical and theological changes. The modern period, dating from the beginning of the nineteenth century, has borne witness to an almost geometric advance in serious study and interest in MR. Among the titans of the modern period, few showed as great diversity in range of interests as Alfred Binet, the acknowledged father of intelligence testing. Today, normalization and humanization are the guiding foci in the care and welfare of MRs. (64 refs.)

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1750 **CLELAND, CHARLES CARR.** Research problems and needs. In: Cleland, C. C. *Mental Retardation: A Developmental Approach.* Englewood Cliffs, New Jersey: Prentice-Hall, 1978, p. 295-311.

The disciplines of medicine, psychology, and

education have contributed the greatest number of studies in the MR research literature, but geneticists, sociologists, anthropologists, and chemists are accelerating their interest in MR. Research efforts in all fields are needed to reduce the occurrence of MR in the United States by half before the end of this century. However, research funding is on the decline, and the various statutes and regulations governing research have brought research using humans to a near standstill in a number of states. Clearly, the sociopolitical trend in research involving human Ss is toward increased legal regulation and control. Informed consent is joined by the legal safeguards of the "S at risk" as well as the code of ethics of the researcher's particular profession. Confidentiality in research or professional contacts with all clients is a further consideration. Many areas of MR offer fertile ground for researchers, including the night life of institutionalized MR, discriminatory practices in institutional settings, the PMR, and the MR living in the community. The impact of the U.S. Department of Health, Education, and Welfare guidelines, and whether they will cause a significant decline in MR research, remain to be seen. (40 refs.)

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1751 **CLELAND, CHARLES CARR.** Current issues: labelling, testing, and litigation. In: Cleland, C. C. *Mental Retardation: A Developmental Approach.* Englewood Cliffs, New Jersey: Prentice-Hall, 1978, p. 312-325.

MR has been considered a medical problem, an educational problem, a psychological problem, a sociological problem, and, most recently, a legal problem. MR is too complex a phenomenon to be limited to any single discipline; other disciplines should contribute either to the knowledge of how to prevent or ameliorate the condition or to the general welfare of the MR. Standardized labels can be advantageous, but they can also hurt. It would undoubtedly foster the mental health of all the handicapped if the laity stopped insulting (labeling) them and accepted them as people. One of the recent waves of discontent which has been voiced *ad nauseam* is that directed against psychometric testing and especially against intelligence tests. It would be foolhardy to suggest that tests have not been abused and that people have not been inaccurately evaluated or mislabeled as a result, yet society is probably better off with than without tests. Litigation involving institutions has reached almost epidemic proportions. Many recent court cases have focused on local community zoning laws, and challenges have resulted in some successes for group-home plaintiffs. (31 refs.)

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1752 **CLELAND, CHARLES CARR.** Market research: an approach to the mentally retarded consumer. In: Cleland, C. C. *Mental Retardation: A Developmental Approach.* Englewood Cliffs, New Jersey: Prentice-Hall, 1978, p. 326-342.

Certain strategies which business and industry have used successfully in meeting the needs of consumers can be applied to the field of MR. Determining personal choice is a basic strategy. Since 50 percent or more of PMRs are living in institutional settings, houseparents or attendants with direct experience could be asked to guess at their charges' preferred colors, in an attempt to have living areas painted in favored colors and to obtain the optimum emotional and physical adjustment. A somewhat more sophisticated approach would be to use extended observation of such MRs under free-spatial movement. A still more powerful approach would be to use a primary reinforcer, such as food. Another business strategy that might be transferred to the MR field concerns salesmanship. Persuasiveness, a keen sense of timing, and the ability to dispel the customer's (or MR's) excessive seriousness via appropriate actions which may incline him or her to laughter all are important ingredients in sales success. The entire marketing problem of distribution of goods and services is a question of locating the buyer in space and time. MRs' needs, interests, and areas of special concern are unique and are only beginning to be isolated. (35 refs.)

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1753 **CLELAND, CHARLES CARR.** Future issues. In: Cleland, C. C. *Mental Retardation: A Developmental Approach.* Englewood Cliffs, New Jersey: Prentice-Hall, 1978, p. 343-355.

MR has emerged as a sociopolitical issue, and it is now and will continue to be a leading contender for the public's attention and financial support. Improved communication between the world's scientists has led to advances in the realm of both behavioral and physical prosthesis. While few technical advances will be of much assistance to PMRs, recent advances in electroencephalography may hold promise. Just as the aged in America are becoming a political force as their life span increases and their numbers swell, so the political voices of the aged probably will benefit MR adults, too. Prevention of MR will continue to maintain a high priority, and genetic counseling should become more readily acceptable to a wider spectrum of the population. Research, basic and applied, in a number of disciplines is the most practical way to ensure a better future for MRs and to find the route to prevention, and it must be considered a necessity, not a frill or a luxury. If MR is, as a cause worthy of funding, not to slip back into neglect, caution is in order. A taxpayer's revolt is conceivable, unless great efforts are made to utilize tax dollars for maximum results. (23 refs.)

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1754 **MENOLASCINO, FRANK J.** *Challenges in Mental Retardation: Progressive Ideology and Services.* New York, New York: Human Sciences Press, 1977, 362 p. (Price unknown.)

The problems of refining diagnoses, judgments, and services which may well determine an MR's future are discussed. Modern ideological trends and needs, unique social-behavioral challenges in the field of MR, and practical issues in management are considered.

CONTENTS: A Critical Look at the Definitions and Treatment of Mental Retardation; Mental Retardation: Its Treatment, Past and Present; Modern Ideological Trends and Their Implications; A Pressing Need: Applied Research; Overview of Emotional Disturbances in the Mentally Retarded; The Mentally Retarded Offender; Sexual Problems in the Mentally Retarded; Providing Child Development Services for the Retarded; Recurrent Problems and Errors in Behavioral Management; A Crisis Model for Helping Parents to Cope More Effectively; The Potential of Community-Based Services for the Mentally Retarded: the Example of ENCOR; De-institutionalization; To Redeem the Present: Reflections on Progressive Change in Services for the Mentally Retarded.

1755 **MENOLASCINO, FRANK J.** A critical look at the definitions and treatment of mental retardation. In: Menolascino, F. J. *Challenges in Mental Retardation: Progressive Ideology and Services.* New York, New York: Human Sciences Press, 1977, p. 11-39.

Many problems exist in the field of MR, America's most prevalent developmental disorder. Prior to the adoption by the American Association on Mental Deficiency (AAMD) in 1961 of a definition of MR that is generally accepted in the United States, such definitions were couched in extremely negative terms. The AAMD statement is more general than earlier ones and does not emphasize the deficiencies and inabilities of MRs, but it still does not adequately stress the learning, growth, and developmental potentials which do exist for MRs. Diagnostic difficulties, negative professional attitudes, and use of inappropriate or inadequate therapeutic techniques have all complicated the lives of MRs, and there is an urgent need to implement technologies and techniques which can eliminate these roadblocks to their future developmental attainments. The United States has a long way to go in its efforts to provide modern treatment and management services for all of its MR citizens.

1756 **MENOLASCINO, FRANK J.** A pressing need: applied research. In: Menolascino, F. J. *Challenges in Mental Retardation: Progressive Ideology and Services.* New York, New York: Human Sciences Press, 1977, p. 104-117.

In most research programs in MR, the focus is upon providing research personnel with freedom of inquiry rather than systematically studying research issues directly relevant to critical problems. Specifically, what is needed is a coordinated and mission-oriented research thrust aimed at answering questions pertinent to both the prevention and the treatment of MR. Stress must be placed upon the need to develop a series of well-defined research priorities to obtain maximum impact on the lives of MR citizens today and

in the future. Although progress is being made in the prevention of MR, it is proceeding through a succession of small advances across a broad front, rather than by virtue of any single dramatic breakthrough. Further research is required to define more clearly the apparent relationship between lack of environmental stimulation and intellectual retardation. In addition, effective behavioral early intervention techniques must be developed to reduce the incidence of MR among high-risk groups.

1757 ***GOLDEN, GERALD S.; & **MCCORMICK, DAVID P.** Children with school problems. *American Journal of Diseases of Children*, 131(12):1406-1407, 1977. (Letters)

One of the major tasks facing the pediatrician is to try to understand each child with school problems as a whole being and to make a careful medical assessment which goes beyond consideration of Wechsler Intelligence Scale for Children (WISC) scores. The diagnosis of MR by the criteria of the American Association on Mental Deficiency requires both subaverage general intellectual functioning and deficits in adaptive behavior. A low IQ is, by itself, insufficient. Labeling has both positive and negative effects. It should be applied with caution, however, and this demands adherence to widely accepted definitions and classifications. In most cases, the pediatrician will not find the WISC very helpful in assessing school problems. Many other areas must be examined, including socioenvironmental factors, language development, auditory processing, motoric skills, and emotional reactions. Only by looking at all of these aspects can the pediatrician begin to build a meaningful picture for the teacher and the parents. (3 refs.)

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1758 **RODEN, DAVID W.** Retarded rights: guardianship and protective services for mentally retarded people. *Australian Journal of Mental Retardation*, 4(6):12-16, 1977.

Traditional guardianship and protective legislation for MRs, designed to deal with individuals considered to be incompetent to manage their own financial affairs and to ensure their compulsory treatment, restricts rights, privileges, and responsibilities of these citizens and must be revised. In North America and Canada, citizen advocacy is the present solution to the problem of providing protective, guardianship services to the handicapped. At the same time, careful attention is being given to updating guardianship services which require a legislative framework. Recent Swedish legislation provides for salaried guardians and trustees, who have functions similar to those of a citizen advocate. In California, a three-tiered guardianship system is in operation whereby an MR may be provided with a guardian, a conservator, or an adviser. Australian legislation and protective services remain grossly inadequate and out-of-date. Legislation is being reviewed both in the Australian Capital Territory and in New South Wales. Meanwhile, all the issues should be debated publicly before the enactment of new legislation. (12 refs.)

1759 Retribution, compensation, or service for the handicapped? *Lancet*, 2(8044):910-911, 1977. (Editorial)

Arguments are enumerated in opposition to compensation by the British Government to people severely damaged by vaccination. The principle of retribution should be differentiated from the need for services for victims of vaccine damage. Public money might best be spent by providing specific services and facilities for the benefit of vaccine victims as well as all mentally handicapped people. Poor and contradictory epidemiological evidence and lack of certain immunological or neuropathological procedures hinder the process of proving vaccine damage and deciding individual cases. Additional finances and personnel would be required to administer compensation programs. The frequency at which the occurrence of medical disasters can be considered as foreseeable hazards remains to be defined. Whereas charitable, retributive compensation is warranted, government liability for individual victims of government immunization programs is deemed inappropriate.

1760 **ROSEN, MARVIN; CLARK, GERALD R.; & KIVITZ, MARVIN S.** Research utilization. *Habilitation of the Handicapped: New Dimensions in Programs for the Developmentally Disabled.* Baltimore, Maryland: University Park Press, 1977, p. 31-44.

The research utilization approach suggested for effective use in habilitation facilities encompasses 3 variables: treatment variables, dealing with the effects of the physical and social setting in which habilitation programs are administered and with the designs and effects of a specific training, service, or remedial education technique; subject variables, involving the evaluation of the MR individual as a dependent variable in the habilitation process; and outcome, employing either predictive, evaluative, or descriptive follow-up of persons completing habilitation programs. This design was proven effective at Elwyn Institute in 1964, and is still in effect there today. (31-item bibliog.)

1761 **BIKLEN, DOUGLAS.** Advocacy comes of age. *Exceptional Children*, 42(6):308-313, 1976.

With the funding of 64 advocacy projects by the Federal government in 1970 and the sponsorship or formal support of advocacy litigation, training, and policy research by numerous national organizations and major professional associations, advocacy has come of age. Although advocacy may seem to be an idealistic, if not impossible, enterprise, the experiences of recent years have demonstrated specific advocacy methods, including demonstrations, demands, letter writing, fact finding forums, communications, symbolic acts, negotiations, education, boycotts, lobbying, model programs, legal advocacy, and demystification. Most advocacy groups seek the enforcement of longstanding rights which have been ignored. The criticism that advocates are using children is an issue which arises whenever people are involved in human service for children, especially when the children do not participate in the decision-making themselves. Advocates may at times be perceived as being negative but they are not pessimistic. People do not work for social change unless they believe that change is possible. (20 refs.)

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1762 **NAZZARO, JEAN N.** Computer cornucopia: CEC/ERIC resources in mental retardation. *Education and Training of the Mentally Retarded*, 11(3):281-285, 1976.

The Educational Resources Information Center (ERIC) system began in 1966 primarily as a data base building program and is still continuing to develop its acquisition network. The scope of ERIC has expanded to include strong emphases on information services, training, information analysis product development, linkages with other organizations and agencies, and dissemination and diffusion activities. From the original concept of ERIC as caretaker of federally funded research reports, the ERIC program has become the major source of information on educational research, development, and practice. The ERIC data base publications are widely regarded as major resources in the field of education for research, program planning and implementation, curriculum development, evaluation, and other activities. Over 200 journals are examined regularly by the staff at the Council for Exceptional Children (CEC) for material concerning exceptional children. From 1966 to the present time, the ERIC Clearinghouse/Information Center project has received and answered over 150,000 requests for information, and it has developed and distributed a wide variety of products and publications.

1763 **KAKALIK, J. S.; et al.** *Mental Health and Mental Retardation Services in Nevada. Executive Summary.* Santa Monica, California: Rand Corporation, 1976. 515 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $4.67, plus postage. Order No. ED128977.

The findings and recommendations of a 2-year study of all major services and service delivery systems in Nevada for persons with mental health disorders, MR, and alcohol and drug abuse problems are summarized. A discussion of basic needs includes prevention of the mentally handicapping conditions, identification of mental handicaps, direction to appropriate service providers, special education, treatment for mental health disorders, developmental training and other services to ameliorate the effects of mental retardation, alcohol and drug abuse treatment, medical care, vocational services, residential care, and income assistance. The research strategy involves taking a comprehensive view of the service system and the

population served, estimating the size and service needs of the mentally handicapped population, and analyzing the characteristics of all Nevada service programs for meeting those needs. The objectives of participants in the service and dimensions on which to measure progress toward the objectives are considered. Problems with the current service systems are described, and 71 recommendations for resolving those problems are presented in tabular form by degree of change needed and by area of basic service need.

1764 **KAKALIK, J. S.; et al.** *Mental Health and Mental Retardation Services in Nevada.* Santa Monica, California: Rand Corporation, 1976. 515 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $1.00; HC $27.45, plus postage. Order No. ED128976.

The findings and recommendations of a 2-year study of all major mental health, MR, alcohol, and drug abuse services and programs in Nevada are summarized. The following topics (and subtopics) are presented in 14 chapters: description of the survey (scope of the project); summary and recommendations (problems with present services); mentally handicapped population (population projections and analysis); Direction, an information-based service (problems with the Direction service in Nevada); prevention of mental health disorders, MR, and alcohol and drug abuse; identification (common problems with identification); special education and training services (needed improvements); nonresidential mental health services (children's behavioral services); treatment for alcohol and drug abuse (problems in the current delivery system); residential mental health and MR services (medical facilities with psychiatric units); vocational services (private community vocational centers); medical services (private medical insurance); residential living (adult group care and family care facilities); and income assistance (county income assistance programs). Information is appended on vocational rehabilitation program and client characteristics, the Joint Commission on Accreditation of Hospitals, and California's Child Health and Disability Prevention Program.

1765 **BERMAN, ALLAN; & SIEGAL, ANDREW W.** Adaptive and learning skills in juvenile delinquents: a neuropsychological analysis. *Journal of Learning Disabilities,* 9(9):583-590, 1976.

The theoretical basis of a neuropsychological approach to juvenile delinquency and the need for such a program are discussed. Two groups of adolescent males, delinquents and matched normal controls, were given the Halstead-Reitan Neuropsychological Battery for Adults and the Wechsler Adult Intelligence Scale. Delinquents performed on a much lower level on both tasks than did controls. The difference between Verbal and Performance IQ favored the Performance score in both groups, although the extent of the difference was significantly greater for the delinquent group. These results suggest the existence of an overall impoverishment of adaptive abilities in the delinquent group, which can be related to the background and lifestyle of the delinquent. (38 refs.)

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1766 U.S. President. Committee on Mental Retardation. *Mental Retardation: Past and Present.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977, 276 p.

The history of America's treatment of MRs is traced from the humanitarian movement of the 1850's to the present. Current efforts of the public and private sector concerning education, services, research, terminology, testing procedures, legal rights, economics, and other facets of MR are encompassed within the broad scope of the report.

CONTENTS: Inheritance of a Hundred Years; The White House Looks at Children and Youth; Parents and Volunteers; Change Makers and Developers; The Growth of Federal Programs; Progress of a Plan; PCMR and Its Role; The Change of an Image; What Is Mental Retardation?; Federal Resources in 1975; Action in the States; The Role of Higher Education; The Economics of Mental Retardation; The Shape of the Challenge.

1767 Inheritance of a hundred years. In: U.S. President. Committee on Mental Retardation. *Mental Retardation: Past and Present.*

Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977, Chapter 1, p. 1-23.

It is possible in historical perspective to see the great injustice that a false understanding of mental disability perpetrated on disabled individuals, to understand why that misconception developed, and to trace what it led to in terms of social policy and the application of the wrong remedies, the effects of which persist even today. In 1850, Dr. Samuel Gridley Howe of Boston (Massachusetts) made the first humanitarian attempt to educate the "poor idiot" and make him socially competent. But even as he was inveighing against the evils of continuing custodial asylum for the pupils of the institutional schools, it was, in fact, occurring. Feeblemindedness stood out starkly as the most dreaded of all disabilities, and Darwinism, sociological research, Mendelian genetics, and psychometry all helped to complete the image of the feebleminded individual as a depraved menace to society. By 1915, deliberate programs were underway to sterilize the feebleminded. Special education arose at the end of the nineteenth century out of impatience with the backward child in the public school classroom. Another half-century would pass before the motive of compassion would lead to the claim of educational opportunity as a right.

1768 The White House looks at children and youth. In: U.S. President. Committee on Mental Retardation. *Mental Retardation: Past and Present.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977, Chapter 2, p. 24-35.

The White House Conferences which have been convened each decade by successive Presidents have been a central core in the national concern for children, and much of the governmental involvement in the well-being of its citizens has stemmed from them. The 1909 Conference on the Care of Dependent Children led directly to a movement for mothers' pensions, the forerunner of Aid to Dependent Children. In 1919, emphasis was placed on the need for more public effort in behalf of children and the expenditure of that effort in the light of the individual characteristics of each child and his family. The 1930 Conference was notable for its comprehensive concern for the mentally and physically handicapped. The 1940 Conference was concerned primarily with the development of adequate child welfare services at local and county levels as an adjunct to general welfare services in the community. The 1950 Conference stressed the development of personality, and the 1960 Golden Anniversary Conference emphasized the promotion of opportunities to enable children and youth to reach their full potential. Distinct from its predecessors, the 1970-1971 Conference was divided into two sections, one on children and one on youth. Education was a major concern.

1769 Parents and volunteers. In: U.S. President. Committee on Mental Retardation. *Mental Retardation: Past and Present.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977, p. 36-61.

The National Association for Retarded Children (NARC) began its life as a grass-roots organization in 1950 and has essentially remained so, its dynamic thrust coming from the personally motivated concern of its members, the parents of MR children and other civic-minded citizens and professionals in the field. NARC has called for programs enhancing developmental potential at every age and regardless of the severity of the condition (the "developmental model"). For the past 5 years it has given priority attention to the extension of learning opportunity to SMR and PMR children. NARC and its member units have entered vigorously into the development of vocational training and sheltered employment of MRs and have worked steadily to improve the humane quality of institutions, to transform their mission from custody to training, and to alter the laws governing admission, cost to families, and release. From its inception, NARC has promoted research on prevention and amelioration of MR. As MR programs have been developed increasingly under public and private auspices, NARC's efforts to expand and safeguard the quality of services have grown. Young people have developed a quasi-independent organization, Youth-NARC, which has divisional status in NARC.

1770 Change makers and developers. In: U.S. President. Committee on Mental Retardation. *Mental Retardation: Past and Present.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977, p. 62-81.

In addition to the National Association for Retarded Children, three nongovernmental organizations stand out above all others in the field of MR. The American Association on Mental Deficiency (AAMD), founded in 1876, is the oldest American association of professional practitioners in the field. AAMD has evolved a refined statement of its purposes which represents the essential elements of a modern professional approach to the field of MR. In recent years, AAMD has been deeply involved with terminology and classification, standards for service delivery, litigation in defense of the Constitutional rights of MRs, and social issues and public policy. The Council for Exceptional Children (CEC) has maintained a common concern for all types of children with special needs since its inception in 1922. The Division on MR operates as one of eleven special interest sections within CEC. The Joseph P. Kennedy, Jr., Foundation, established in 1946, has had a profound impact on the search for solutions to the problems of MR. Over the years it has launched several model programs to enable MRs to become more self-sufficient through vocational rehabilitation and physical fitness. (8 refs.)

1771 The growth of Federal programs. In: U.S. President. Committee on Mental Retardation. *Mental Retardation: Past and Present.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977, p. 82-103.

Without the involvement of the Federal Government, the combined efforts of volunteers, professionals, and private foundations would have had little effect in bringing MR into public focus. Certain landmarks of executive action, legislation, and judicial decision have led to the present situation from which recommendations can be made. The 1909 White House Conference on the Care of Dependent Children, the first of its kind, set the precedent for the White House to serve as a national forum for discussion, debate, and recommendations concerning the nation's course on matters of common interest. The establishment of the President's Committee on Employment of the Handicapped in 1947, the creation of the President's Panel on MR in 1961, and the creation of the President's Committee on MR in 1966 followed. Major legislative landmarks leading to Federal recognition of MR extend from the Act establishing a Department of Education in 1866 to the Developmental Disabilities Acts of 1970 and 1975. In the past 5 years, more than 100 civil rights cases have been brought in behalf of MRs. The task of coordinating Federal MR programs remains a formidable one. (8 refs.)

1772 Progress of a plan. In: U.S. President. Committee on Mental Retardation. *Mental Retardation: Past and Present.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977, p. 104-125.

In 1962, the special Panel on MR appointed by President Kennedy published its report, *A Proposed Program for National Action to Combat MR.* This report, with three supporting documents by the task forces on Education and Rehabilitation, Behavioral and Social Research, and Law, constituted a major milestone in the history of MR in the United States. The value of the report as a guide to action rested on the Panel's clear understanding of the goals, its unanimity on basic guiding principles, its knowledge of the state of the art, its awareness and careful explication of MR, and its explicit recommendations dealing with practical measures, directed towards clearly envisioned goals. The report placed strong emphasis on research into the causes of MR, methods of care, rehabilitation, and learning, and on preventive health measures. The report also recommended that services should constitute a comprehensive, community-centered continuum with a fixed point of referral and that, with Federal assistance, the States and local communities should bear the principal responsibility for financing and improving facilities for MRs. In the 13 years since the Panel submitted its report, a movement of extraordinary proportions has arisen.

1773 PCMR and its role. In: U.S. President. Committee on Mental Retardation. *Mental Retardation: Past and Present.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977, p. 126-135.

In 1966, President Johnson established the President's Committee on MR (PCMR) as a body committed to providing assistance with respect to evaluation of the adequacy of the national effort to combat MR, coordination of the activities of

Federal agencies in the field, provision of adequate liaison between such Federal activities and related activities at other levels, and development of information aimed at reducing the incidence of MR and ameliorating its effects. The Committee was also committed to mobilizing support for MR activities and to making reports or recommendations to the President. Since that time, PCMR has sponsored, cosponsored, and participated in countless conferences touching on every one of the subjects that make up the field of MR. Its major concerns have been the human and legal rights of MRs, institutional living, deinstitutionalization, early detection and treatment, early intervention with high-risk infants and children, and biomedical prevention of MR. PCMR has commissioned a number of studies in the field, foremost among which is a major work entitled *The Economics of Mental Retardation*, by Ronald Conley. Breadth of scope and diversity of membership have proven to be the Committee's strengths.

1774 The change of an image. In: U.S. President. Committee on Mental Retardation. *Mental Retardation: Past and Present.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977, p. 136-141.

A comparison of articles of belief concerning MR which guided practice in the early part of this century with those of the latter part of the century illustrates the stark contrast in representative viewpoints between 1912 and 1975. Some enlightened individuals in 1912 spoke the progressive language of 1975, whereas expressions of view harking back to the dark days of 1912 can still be heard today. In the past quarter century, practice has been rapidly catching up with modern knowledge, and knowledge itself has been expanding rapidly. Activity and changing patterns have progressed simultaneously on many different fronts. General intelligence is now regarded as being polygenic, and IQ is no longer viewed as a measure of brain potential. Medical services have both prolonged the lives and reduced the disabilities of MRs. A Federal statute now mandates appropriate educational opportunity for all handicapped children, regardless of category or severity. Not only are the inherent rights of MRs being upheld in the courts, but society is becoming more enlightened, and damaging myths concerning MR are being exploded.

1775 What is mental retardation? In: U.S. President. Committee on Mental Retardation. *Mental Retardation: Past and Present.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977, p. 142-155.

According to the formal definition published by the American Association on Mental Deficiency (AAMD) in 1973, which is widely accepted today, "MR refers to significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior, and manifested during the developmental period." This definition is the culmination of long debate and revision, and it may well be modified in the future. There is complete agreement that it is impossible, with the present state of knowledge, to determine accurately either the incidence or the prevalence of MR. There is far less agreement on what can be done to remedy this situation. Among the most urgent issues is classification. The AAMD formulation involving two-dimensional deficit in the level of behavioral performance unquestionably is responsive to many problems arising from older definitions, but problems remain. The relationship between a specific level of deficit and the need for specific types of service and treatment may be highly artificial. Labeling brings with it stigma. A computerized data bank might aid in classifying MR, bur rights of privacy and confidentiality are a critical issue. (18 refs.)

1776 Federal resources in 1975. In: U.S. President. Committee on Mental Retardation. *Mental Retardation: Past and Present.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977, p. 156-191.

Because of the increasing trend away from categorical legislation and funding since 1970, and the interpenetration of MR with many other human conditions, it is as difficult to state a precise dollar value for the total Federal resources involved in MR as it is to define the precise range of activities which have an impact on MR. Conley (1973) has estimated that the cost of all resources devoted to MRs in 1970 was probably in the range of $20 to $30 billion, while the value of special programs designed specifically to meet the problem of MR was about $4.9 billion. Of all the costs of direct services to MRs, the distribution in 1970 was estimated to have been 12.2 percent

Federal, 79.3 percent state and local, 5.9 percent from client fees, and 2.6 percent from insurance and philanthropy. Since 1970, total cost and investment in MR have increased substantially at all levels. In recent years, Federal legislative authority and the appropriation of funds have covered inclusive needs rather than narrow categorical concerns. The net effect has been to multiply the resources but to make it more difficult to evaluate their impact on the specific problem.

1777 Action in the States. In: U.S. President. Committee on Mental Retardation. *Mental Retardation: Past and Present.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977, p. 192-209.

The States are making use of Federal resources for MR in various ways. Material obtained from a survey conducted by Robert M. Gettings, Executive Director of the National Association of Coordinators of State Programs for the Mentally Retarded, and from other sources indicates certain major trends in State government, including consolidation of administrative authority, establishment of human service agencies, decentralization of operational authority in sub-state regions, and acceptance of the "developmental disabilities" concept. Increasingly, the complexity of management has led to the division of the States into regions or sections with delegated responsibilities for services and management. In general, voluntary groups constitute a substantial force in the evolution of services for developmentally disabled clients in most States and communities. In virtually all States, the dollar outlay for institutional care is still considerably greater than that for community services. However, a distinct trend is apparent towards shifting responsibility for the education of institutionalized children from the institutional administration to the State eductional authority.

1778 The role of higher education. In: U.S. President. Committee on Mental Retardation. *Mental Retardation: Past and Present.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977, p. 210-243.

The President's Panel on MR is responsible for stimulating the development of research in MR and the training of expert manpower in the universities. As a result of recommendations made by the Panel in 1962, Congress authorized and the executive departments and agencies implemented programs of planning, construction, development, and support designed to tie the involvement of universities to the construction and development of community facilities and the delivery of services to MRs. These developments led to the construction at university sites of twelve MR Research Centers; 20 service facilities affiliated with universities for interdisciplinary training and for demonstration of the required continuum of services; 20 Rehabilitation Research and Training Centers, 3 designated for MR; and greatly expanded programs of university training and project development under the Bureau for Education of the Handicapped, Office of Education. In addition, individual departments and schools of many colleges and universities not under major MR programs were enabled to develop their own MR research and training programs.

1779 The economics of mental retardation. In: U.S. President. Committee on Mental Retardation. *Mental Retardation: Past and Present.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977, p. 244-257.

The economic problem of MR centers on the methods by which society attempts to reduce the liabilities in both monetary and humanistic terms and the means by which the cost is distributed among the constituents of social organization. As public protective and rehabilitative programs have grown in the American economy over the past 25 years, MRs have secured increased benefits. The market process for services is very significant for MRs in the last quarter of this century: an increase in demand is not likely to get a favorable hearing now, whereas the threat of retrenchment in social programs and budget does exist. Despite the difficulties involved, Conley (1973) has derived epidemiological, benefit/cost, and efficiency findings of potential value. The findings point to policies which would be more economical than those prevailing today, and they highlight the potential productivity of the large majority of MRs and the benefits to be realized by investments in educational and vocational training efforts on

their behalf. They also indicate clearly the economic benefits of prevention of MR. (12 refs.)

1780 The shape of the challenge. In: U.S. President. Committee on Mental Retardation. *Mental Retardation: Past and Present.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977, p. 258-264.

Although much has happened in the past 25 years to reverse social policies, change public attitudes, reduce the occurrence of MR, and to improve the quality of life for MRs, solutions have only begun to be discovered. Progress towards the goal of substantial prevention depends upon increasing the knowledge of causes and conditions of risk–eliminating known causes, and avoiding known risks. The unknown is still far greater than the known, and continued investment is needed in basic, targeted and applied research. In the area of public attitudes and social behavior, the challenge lies in the continued provision of public information, in attempts to transform existing negative attitudes into positive and accepting ones, and in the achievement of public accommodation of MRs. Realization of the major objectives in preventing MR and in providing adequately for MRs will require substantial expansion of public as well as private financial resources. Responsibility for regulatory management must be shared, Federal regulations must be simplified, and fiscal and service accountability must be achieved.

1781 **WORTIS, JOSEPH, ed.** *Mental Retardation and Developmental Disabilities: An Annual Review* (Annual Series, Volume 9). New York, New York: Brunner/Mazel, 1977, 342 p. (Price unknown.)

Articles on the etiology, diagnosis, and treatment and management of individuals with MR and developmental disabilities are presented. A chronicle of legislative rulings and other events concerned with mental health occurring in the period 1975-1976 is also provided.

CONTENTS: Introduction: The Role of Psychiatry in Mental Retardation Services (Wortis); Willowbrook (Hansen); Willowbrook: A View from the Top (Grunberg); Clinical Aspects (Kirman); Infectious Diseases in Etiology (Yoeli; Scheinesson; & Hargreaves); Congenital Malformations: The Corpus Callosum (Dignan & Warkany); Physical and Occupational Therapy (Levine & Birch); Behavior Analysis (Barrett); Cognitive Development and Social Class (Birns & Bridger); Administration: Public Agencies (Gettings); People First: A Self-Help Organization of the Retarded (Schaaf; Hooten; Schwartz; Young; Kerron; & Heath); Income Maintenance: Federal Income Resources for Persons with Long-Term Disabilities Originating in Childhood (Boggs); Chinese-Americans: Another Minority (Burger); Latin America: Recent Developments (Sardi de Selle & Abadi).

1782 **KIRMAN, BRIAN H.** Clinical aspects. In: Wortis, J., ed. *Mental Retardation and Developmental Disabilities: An Annual Review* (Annual Series, Volume 9). New York, New York: Brunner/Mazel, 1977, p. 53-72.

The organization of the work of the clinician dealing with MR has changed radically over the last 50 years, and he now operates as a member of a multidisciplinary team interested in various clinical aspects of this field. The argument concerning the use of mass screening of pregnancies, especially in older women, by amniocentesis continues. The pattern of factors producing MR also continues to change; changes produced by the use of advances in knowledge are resulting in planned and conscious intervention, while economic and cultural changes are taking place which influence intellectual potential and realization. Even where there is a gross physical process accounting for MR, the clinician must consider the possibility of a multifactorial etiology. Awareness of the permanence and severity of brain lesions has tended to make the clinical prognosis unduly gloomy, and preoccupation with formal IQ or MA has resulted in an underestimation of learning potential. Prognosis for life has changed dramatically for the moderately and even more severely MR, and family planning must take into account the increased life expectancy. (46 refs.)

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1783 **FRASER, F. CLARKE.** Commentary—developments in the organization of genetics in Canada. In: Lubs, H.; & de la Cruz, F., eds. *Genetic Counseling* (a monograph of the National Institute of Child Health and Human Development). New York, New York: Raven Press, 1977, p. 553-560.

In Canada, a professional genetics organization has been proposed which will be called a Canadian College of Medical Geneticists. Its role will be to establish and maintain professional standards of health care delivery in this field, to accredit medical genetics centers providing health care services, to inform the appropriate levels of government concerning the role of medical geneticists in health care, to advise provincial governments on the nature and extent of medical genetics services which should be provided, to aid in negotiations with appropriate levels of government on methods of funding, and to issue certificates of accreditation in medical genetics to M.D.s and Ph.D.s who possess the necessary qualifications. One of the things that this proposal would do would be to argue strongly for a global budget rather than fee-for-service funding, which exists at present and which is wholly inadequate for the funding of genetic counseling services. Accreditation procedures would be tantamount to having boards in medical genetics.

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1784 **BIKLEN, DOUGLAS.** Myths, mistreatment, and pitfalls: mental retardation and criminal justice. *Mental Retardation*, 15(4):51-57, 1977.

Societal myths, mistreatment within the criminal justice system, and difficulties associated with special treatment represent the three major categories of problems facing the MR offender. Myths frequently associated with the relationship of MR to criminality still prevail, although the 10 percent estimate for MRs in prisons may not reflect any greater propensity of MRs than other segments of the general population towards crime. In general, many of the age-old myths have been discredited through careful research, but they persist. The extent of mistreatment endured by MR offenders has been inadequately researched. While each of the many claims about mistreatment may prove well-founded, failure to document them will detract from the credibility of any remediation plans and programs or reforms within the society and within the criminal justice system. Special treatment for MR offenders poses serious questions related to possible deprivation of freedom and inhumane treatment. Moreover, there is no assurance that special treatment will not become an administrative mechanism for labeling more people. (52 refs.)

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1785 **BURGER, AGNES LIN.** Chinese-Americans: another minority. In: Wortis, J., ed. *Mental Retardation and Developmental Disabilities: An Annual Review* (Annual Series, Volume 9). New York, New York: Brunner/Mazel, 1977, p. 274-287.

In light of the exceedingly low rate of MR among Chinese-Americans, who are largely of lower socioeconomic status, a review of the history and social structure of this minority group in the United States is appropriate. The Chinese, who migrated to this country in the 1840's, were the first Asians to arrive. They were generally well-received at first, but racial discrimination soon became rampant. In the 2-decade period following the adoption of the Chinese Exclusion Act in 1882, the U.S. passed 13 discriminatory laws against the Chinese. Within the confines of Chinatowns, the Chinese joined together to form organizations for self-protection as well as solidarity. Anti-Chinese sentiment in the U.S. decreased precipitously during World War II as China became an ally in fighting Japan. Immigration laws were liberalized in 1943, and all bans against the Chinese were finally lifted in 1965. Despite a largely erroneous success image, Chinese-Americans generally experience all the characteristic problems of a minority of low socioeconomic status. The simultaneous presence of this status and a low rate of MR suggests the need to consider cultural background when the origins of cultural-familial MR are examined. (42 refs.)

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1786 **SARDI DE SELLE, MILENA; & ABADI, ALBERTO.** Latin America: recent developments. In: Wortis, J., ed. *Mental Retardation and Developmental Disabilities: An Annual Review* (Annual Series, Volume 9). New York, New York: Brunner/Mazel, 1977, p. 288-315.

It is very difficult to define the concept of MR in Latin America, because the criteria used in other countries are not directly applicable to this population. A corollary is that it is not possible to establish the magnitude of the problem. Many individuals with moderate or mild MR are not diagnosed, either because they become incorporated into the general population as they grow older or because the cultural environment and school place few demands on them. The general health and educational systems in most Latin American countries are not very effective, so the implementation of intensified efforts to integrate and assist MRs poses many difficulties. MR as a problem that concerns the entire population has been ignored by most national governments and most government officials. Moreover, very little information is offered about MR in the universities and medical schools, and few research programs exist in this field. Few service facilities are located in the smaller centers and rural areas, and manpower training and human resources are scarce. Due to the high population growth and the almost nonexistent preventive programs, the incidence of MR tends to increase. It is estimated that one percent of the total population shows characteristics of MR. (12 refs.)

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1787 **BENEFIELD, D. GARY.** The newborn health insurance exclusion clause eradicated in Ohio. *Clinical Pediatrics*, 15(1):19-20, 1976.

Significant progress has been made in changing health insurance coverage for dependent children that excludes the sick newborn from benefits for the first 7, 14, or even 21 days of life. Since more newborn infants die in the first 7 days than in the entire remainder of the first year, these health insurance policies fail to give protection during the interval of greatest risk and often cause catastrophic financial burdens to be inflicted upon uninformed families. In November 1973, the American Academy of Pediatrics, aided by the Health Insurance Association of America, developed a Model Newborn Insurance Bill which provides health insurance coverage for sick newborn infants from the moment of birth. As of February 1974, seven states had enacted legislation requiring this coverage. A Newborn Health Insurance Bill patterned after the Academy Model Bill was introduced into the Ohio House of Representatives that same month and has been signed into law to take effect January 1, 1975. Growing legislative movement in this area has been stimulated by pediatricians in Florida and California as well. (1 ref.)

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1788 **HAYWOOD, H. CARL.** The ethics of doing research... and of not doing it. *American Journal of Mental Deficiency*, 81(4):311-317, 1977. (Editorial)

Six recommendations are made on how to advance experimental knowledge in the field of MR without violating the human rights of MR persons. First, a constant guard should be maintained against the "siren songs of antiscience in the name of human rights." Second, research should be a part of every statewide service system and be adequately supported. Third, research proposals must be screened properly to ensure that researchers ask important questions. Fourth, major attention must be addressed to the central issue of informed consent. Fifth, those who ask for the privilege of doing research in service settings can render some valuable service in return, such as contributing to inservice training programs. Sixth, sufficient evidence must be demanded by researchers as justification for any treatment procedures. Concluding remarks identify research that is no longer needed and areas of research in which more work needs to be done. The latter includes: (1) the economic realities of congregate housing, community-oriented care, and education/training of MR persons; (2) maintenance of stimulus-controlled behavior outside the labora-

tory and in noncontingent situations; (3) Characteristics of various settings in which MR persons reside and function; and (4) the differential rates of mental health problems among retardates in various settings.

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1789 **STANOVICH, KEITH E.** Note on the interpretation of interactions in comparative research. *American Journal of Mental Deficiency*, 81(4):394-396, 1977.

Experimental investigators must realize that dependent variables that are only monotonically related to underlying theoretical constructs are subject to transformations that may either create or eliminate statistical interactions. This fundamental problem is particularly applicable to comparative research where interest often focuses on an interaction between subject population and an experimental manipulation. Thus, specific process differences should only be inferred from an interaction between the subject population and an independent variable that is known to affect the process in question. To the extent that the dependent variable employed in a particular study is chosen arbitrarily, rather than from a direct theoretical link to the underlying construct of interest, any interactive effects can be removed or produced by equally arbitrary monotonic transformations of the dependent variable. (11 refs.)

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1790 **COOKE, ROBERT E.** An ethical and procedural basis for research on children. *Journal of Pediatrics*, 90(4):681-682, 1977.

Nontherapeutic research in infants differs from therapeutic research, in that it has no immediate and direct benefit for the individual subject. Such research is ethically acceptable only under the following conditions: animals, adults, or older children have been previously studied when feasible; no alternative means are available to gain the specific information; the sought-after information is highly valuable to prevent harm and do good; every effort is made to utilize the same procedures that are needed for medical and nursing care; the least invasive and least uncomfortable procedures possible are utilized; the risk is no more than minimal; there is no unfair discrimination in the selection of subjects; both parents give consent and participate; and there is careful scrutiny of the motivations of the family that volunteers to participate so that thoughtful consent is given. (3 refs.)

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1791 **JACKSON, ROBIN.** Mild mental retardation: myth and reality. *British Journal of Mental Subnormality*, 23, Pt. 2(45):76-82, 1977.

There is a whole range of dubious assumptions concerning the nature of mild MR, and many of these myths are confusing present thinking. The characteristically ethnocentric view that mild MR is essentially a social phenomenon peculiar to Western industrial societies ignores available anthropological evidence which suggests that mild MR may well be a pancultural phenomenon. It is frequently assumed that the mildly MR are what they are because of the social demands, particularly the educational and intellectual demands, of modern civilization, yet the assumption that these mildly MR would necessarily be socially competent in simpler, nonliterate societies is not a realistic one. The argument that mild MR has become a social problem because of the needs of our particular society also has to be treated with caution. Finally, while it may be assumed that in pre-literate or pre-industrial societies MRs were either not stigmatized at all or not stigmatized to the same extent as in Western societies, the truth would seem to lie in the opposite direction. The continuing neglect of MR by sociologists has made it increasingly difficult to disentangle fiction from fact and myth from reality. (15 refs.)

King Alfred's College of Higher
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1792 **LORING, JAMES.** Comments on Robin Jackson's paper "Mild mental retardation: myth and reality." *British Journal of Mental Subnormality*, 23, Pt. 2(45):83, 1977.

Robin Jackson's paper on the fictions and facts of mild MR is a fascinating document, yet it is unclear whether its aim is to explore a sociological type of neglect of mild MR or to demonstrate that the phenomenon of MR is perceived identically in all societies. His attack upon the concept that intellectual and social skills required to survive in a preliterate and preindustrial society were sociologically less demanding than the skills required to survive in an industrial society is well-founded. He is on much shakier ground in countering the proposition that mild MR is perceived as a social problem only in Western industrialized societies, in part because of his dubious use of the term "social problem." It is true that because of genetic defects or damage before and during birth, some individuals have limited potential to develop cognitive skills. Most or all societies identify some individuals as falling below the required levels of adult competence. However, there is no culture-free measurement of cognitive potential, and even if there were, it is very unlikely that different societies would define the limits of acceptability in the same manner.

Spastics Society
London, England

1793 **PAULI, RICHARD M.; & CASSELL, ERIC J.** Nurturing a defective newborn: commentaries. *Hastings Center Report*, 8(1):13-14, 1978.

Questions about resuscitation, medication, and allowing a newborn to die seem appropriate to ask in the case of an infant with trisomy 18 who, with treatment, has a very limited life expectancy and, should she survive, has very little likelihood of experiencing even the most minimal affective interaction with other people. The tension for the physician-counselor in this case is the conflict between an active and compassionate concern to minimize the suffering (through overwhelming guilt) of the parents, and the more passive responsibility to allow them to act autonomously. The parents' nurturing of their infant will not change her defects or the conditions upon which a decision must be based, but nurturance and the establishment of a bond may lead to a decision to save the baby's life and will only add to the parents' suffering after her death. On the other hand, by attempting to allay the parents' suffering through discouraging nurturance or refusing to let them see their baby, the physician-counselor is engaging in paternal deception. The physician should allow the parents to decide whether to touch and hold the baby, but should encourage them to do so. But Dr. Cassell points out that nurturing this infant may cause the decision whether to save the baby's life to be a selfish one based on unwillingness to lose a loved one.

Children's Orthopedic Hospital/
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Seattle, Washington

1794 **ANNAS, GEORGE J.** The incompetent's right to die: the case of Joseph Saikewicz. *Hastings Center Report*, 8(1):21-23, 1978.

The incompetent patient's right to die was affirmed in Massachusetts in the case of a 67-year-old institutionalized PMR diagnosed as suffering from acute myeloblastic monocetic leukemia, an invariably fatal disease. Approximately one month following the diagnosis, the probate court judge ordered that no treatment be administered. The Massachusetts Supreme Judicial Court affirmed the decision about 2 months later, saying that a full decision would follow. In the meantime, the man died of bronchial pneumonia, apparently without pain or discomfort. More than 14 months later, the court issued its full opinion, which dealt with (1) the right of any person, competent or incompetent, to decline potentially life-prolonging treatment; (2) the legal standards that control the decision whether potentially life-prolonging, but not lifesaving, treatment should be administered to an incompetent; and (3) the procedures that must be followed in arriving at that decision. Primarily, the decision concerned patients' rights to human dignity and autonomy, and it is here that the decision is likely to have its broadest impact. The court found that all patients have the absolute right to refuse life-sustaining treatment that will not cure or preserve life, and that such decisions must be based on what is important to the individual patient.

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1795 **McCORMICK, RICHARD A.** The quality of life, the sanctity of life. *Hastings Center Report*, 8(1):30-36, 1978.

The adequacy of moral and ethical formulations is being challenged in the sphere of life preservation, especially in the awesome area of neonatal intensive care. Increasingly, decisions about life support are focusing more narrowly on a single element, the kind of life that the patient experiences as a result of the employment of new life-support technologies. The terms "ordinary" and "extraordinary" are so relative that they are equally capable of abuse as quality-of-life language. The famous Johns Hopkins case in which a baby with Down's syndrome, needing minor surgery, was allowed to die on the grounds that surgery would be extraordinary is a well-known instance. It is argued occasionally that emphasis on "means" better protects the equal value of all lives because it stresses objective indications and puts the whole question in the context of the goodness of life. What is important is that the line be drawn in the proper place. Life preservation decisions are particularly difficult to make when the patient is an infant, since it is all but impossible for healthy adults to extrapolate backwards on what kind of life will be acceptable to the infant. But these judgments must sometimes be made. (34 refs.)

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1796 **SEVER, LOWELL E.; DARLING, ROSALYN BENJAMIN; & HAWES, JANET.** Spina bifida: diagnosis and values. *Hastings Center Report*, 8(1):4, 43, 1978.

Parents of children with severe birth defects, including spina bifida, who were surveyed concerning their views on diagnosis of such serious defects in infancy and the value of life indicated that life has value in spite of physical imperfections. These parents were not intended to be representatives of all such parents. Rather, the findings were presented to show that at least some, and possibly many, parents of congenitally handicapped children expressed approval that their children had been treated at birth. No differences in parental attitudes were observed on the basis of socioeconomic status. Before the diagnosis and prognosis are established definitively, parental behavior is based largely on the need for a truthful and accurate assessment of their child's condition. Once a medical diagnosis has been conferred, however, the social meaning of that diagnosis may be highly similar for a variety of congenital conditions, including spina bifida. The value of any human life cannot be measured in percentages or majorities. Each case must be decided individually, and hopefully with full knowledge of all the possible outcomes of any decision that is made.

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1797 **COHEN, M. MICHAEL, JR.** Syndrome designations. *Journal of Medical Genetics*, 13(4):266-270, 1976.

Various systems of nomenclature of new syndromes and the advantages and disadvantages of each system are reviewed. In general, a new syndrome may be denoted by the basic defect, an eponym, one or more striking features, an acronym, a numeral, a geographic term, or some combination of the above. The names of new syndromes connote their phenotypic spectra, their natural histories, and their modes of inheritance or risk of recurrence. (32 refs.)

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MEDICAL ASPECTS – Diagnosis (General)

1798 **LEONG, C. K.** Functional diagnosis of mentally retarded children. In: Das, J. P.; & Baine, D., eds. *Mental Retardation for Special Educators*. Springfield, Illinois: Charles C Thomas, 1978, Chapter 8, p. 159-177.

Diagnosis of the MR child should be an ongoing process involving miniteaching and learning situations. Patterns of the child's performance should be emphasized, and diagnosis should be related to the changing concepts of MR and should lead to habilitation. In considering which tests to use for assessment, it is helpful to map out some ability or skill domains basic to the learning of MR children. Breakdown of skills into the psychomotor, visual and auditory, cognitive, and psycholinguistic domains is effective. The various skills and subskills are interrelated and interdependent. Moreover, there are limitations in the physical and psychological makeups of MR children which make it difficult for them to perform well on physical, psycholinguistic, and psychological activities. Thus, diagnosis should stress how or why the MR child performs rather than merely recording correct or incorrect answers. With the large number of skills to be assessed in multiply handicapped MR children, it is not sufficient to rely on standardized tests alone. Assessment for these children often becomes a series of structured observations extending over a period of time. (55 refs.)

Institute of Child Guidance
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1799 **CLELAND, CHARLES CARR.** In: Cleland, C. C. *Mental Retardation: A Developmental Approach*. Englewood Cliffs, New Jersey: Prentice-Hall, 1978, Chapter 3, p. 60-91.

Certain social, emotional, and physical indices in childhood can, taken together, suggest retarded development in these areas. Despite a decade or more of criticism directed against intelligence tests and other tests, a well-standardized, individually administered intelligence test given by a trained clinical psychologist remains the best way to determine intellectual functioning. Numerous attempts have been made to assess the social competence or adaptive behavior of both children and adults. In the assessment of these skills in MRs, some measures are employed occasionally also as a rough estimate of mental ability. Lest intervention degenerate to the point of mere meddling, certain behavioral and physical problems of MRs need more emphasis than others do. In most instances of MR, the child, by the age of 10 or 12, is more nearly physically normal for his or her chronological age than he or she is mentally or emotionally. By late childhood, in all likelihood, the person with any level of MR has been labeled as such by teachers or school psychologists, as well as by age peers. (49 refs.)

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1800 **CLELAND, CHARLES CARR.** Adolescence. In: Cleland, C. C. *Mental Retardation: A Developmental Approach*. Englewood Cliffs, New Jersey: Prentice-Hall, 1978, Chapter 4, p. 92-108.

Whereas the adolescent of severe or profound level of MR usually has been so diagnosed well before this age is attained, the physical status of the higher-level MR generally will not reveal the condition of MR, and a variety of individually administered intelligence tests, projective tests, and special tests assume importance. As is true of any other age group, the assessment and diagnosis of MR in the adolescent requires the concerted effort of several disciplines. The psychologist will not rely upon a single test in any event. Since adolescents are so typically concerned about their acceptance, appearance, and other aspects of growing up, some become despondent, and others become aggressive and act out. MRs will lag behind and, while less inclined to introspection, may show moodiness as they become more and more aware

that they are different and often rejected. Work is a good antidote for depression. Specific interventions will be needed to prepare the MR for his or her future. (36 refs.)

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1801 **CLELAND, CHARLES CARR.** Prenatal life and infancy. In: Cleland, C. C. *Mental Retardation: A Developmental Approach.* Englewood Cliffs, New Jersey: Prentice-Hall, 1978, Chapter 2, pp. 33-59.

Some of the more recent research on infant development suggests possibilities for early assessment and perhaps diagnosis of MR. The obstetrician and pediatrician are alerted by numerous factors, including overage mothers, prematurity, maternal addiction to drugs, fetal diagnosis via amniocentesis, Rh-incompatibility, viral diseases (rubella) in early pregnancy, type of birth presentation, and history of venereal disease in the mother. Even the sex of the child can be important. Once the child is born, reflex integrity, Apgar testing, and a variety of urinalysis and blood tests can signal deviation. Infant perceptual processes and the conditionability of newborn infants seem potentially important assessment procedures. Typically, mild, aclinical MR cannot be diagnosed until school entry, yet intervention measures should be instituted as early as possible. Two representative studies have demonstrated the substantial impact of environmental influences on subsequent intellectual, social, and emotional development and have guided other researchers in their efforts to provide meaningful and properly sequenced early interventions. (68 refs.)

University of Texas
Austin, Texas

1802 **GRANOFF, DAN M.; CONGENI, BLAISE; BAKER, ROBERT, JR.; OGRA, PEARAY; & NANKERVIS, GEORGE A.** Countercurrent immunoelectrophoresis in the diagnosis of *Haemophilus influenzae* type b infection. *American Journal of Diseases of Children*, 131(12):1357-1362, 1977.

Sixty-one patients with *Haemophilus influenzae* type b infection, 39 of them with meningitis (median CA 10 mos) and 22 without meningitis (median CA 24 mos), were studied for the presence of capsular antigen by countercurrent immunoelectrophoresis. Antigen was present ($\geq$10ng/ml) in admission blood or cerebrospinal fluid samples of 92 percent of patients with meningitis and could be detected in blood for up to 17 days. No difference in persistence of antigen was found in patients with meningitis who were receiving ampicillin or chloramphenicol. Antigenemia was detected less frequently in patients without meningitis who were studied at the time of hospital admission (7 out of 22, $p<.01$). However, antigen was detected 24 hours after the onset of therapy in one initially negative patient; in four other patients who lacked circulating antigen, bone or joint aspirates or nasopharyngeal secretions were antigen positive. Circulating antigen was detected less often in patients 2 years of age and older and those with convalescent hemagglutinating titers greater than or equal to 1:4. (22 refs.)

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1803 **DUNCAN, SHEILA L.B.; GINZ, BERYL; *WARD, A. MILFORD; & HINGLEY, S. M.** Amniotic fluid AFP in multiple pregnancy. *British Medical Journal*, 1(6072):1354, 1977. (Letter)

Maternal serum alpha-fetoprotein (AFP) screening may be confusing in multiple pregnancies in that the levels may normally be elevated. This situation may be clarified if values of amniotic fluid AFP in twin pregnancies are determined. In 3 years' experience, the authors have noted 9 multiple pregnancies in which amniotic fluid was studied. With the exception of 2 cases, all AFP values were within normal limits for singleton pregnancies. In the 2 other cases, 1 of the fetuses was affected with neural tube defects. It is concluded that there is no evidence that twins cause higher than normal amniotic fluid AFP levels.

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1804 RICKWOOD, A.M.K. A case of ileal atresia and ileocutaneous fistula caused by amniocentesis. *Journal of Pediatrics*, 91(2):312, 1977.

Following amniocentesis at 18 months gestation, an infant was born with an intestinal fistula to the right of the umbilicus, which discharged meconium. The fistula proved to be the termination of the proximal limb of an ileal atresia. There was slight stenosis of the ileum where it passed through the right rectus muscle, but the fistula had nonetheless decompressed the ileum, which was only minimally dilated. In the absence of intrauterine peritonitis or other embryological explanations for the lesion, it is assumed to have resulted from penetration of the fetal peritoneal cavity during amniocentesis. This assumption is reinforced by a finding of *Staphylococcus aureus* within the infant's peritoneal cavity at the time of surgical resection of the ileum and ileocolic anastomosis. (4 refs.)

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1805 LAU, H. LORRIN; & LINKINS, SUSAN E. Alpha-fetoprotein. *American Journal of Obstetrics and Gynecology*, 124(5):533-554, 1976.

The clinical importance of alpha-fetoprotein (AFP) has stimulated interest in biology, in oncology, and in antenatal diagnosis. Unlike most fetal monitors, which are restricted to a small portion of gestation, measurement of AFP is clinically useful in all three trimesters for a variety of indications. After the first trimester, assays may be useful in assessing maternal complications. In toxemia, 65 percent of cases fall below the median level in maternal serum and are also below median levels in fetal serum and amniotic fluid. Down's syndrome and ataxia-telangiectasia are conditions associated with elevated AFP levels which can be recognized at or after birth. Certain chromosomal abnormalities such as 45,X also may be associated with elevated amniotic AFP levels. AFP assays with amniotic fluid and maternal serum have been used successfully to screen for neural tube defects as early as 6 and 12 weeks' gestation, far in advance of the time when lesions would be detectable by ultrasound scanning and X-ray examinations. Used in a prenatal diagnostic screening center, AFP determinations of these fluids may prevent more abortions than they selectively indicate. (224 refs.)

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1806 WYATT, PHILIP R. Who's for amniocentesis? *Lancet*, 1(8025):1315, 1977. (Letter)

The decision to use amniocentesis is sometimes a difficult one and should carefully weigh the benefits against the possible and perhaps unknown risks of amniocentesis. Virtually all chromosomal aberrations and many biochemical disorders can be detected by amniocentesis and prenatal diagnosis. This technique should be prescribed for all women whose history puts them at high risk of delivering an affected child; however, there are many other circumstances which are not so clearcut. Women in the 35-40 or over 40 age group present a particular problem. Women aged 35-39 have a risk of 2.2 percent of carrying a fetus with a chromosomal abnormality at amniocentesis while for maternal age greater than 40 the risk is 3.4 percent. However, some studies show that women in the over 35 group who undergo amniocentesis have approximately 3 times the chance of producing a child with chromosomal damage as women in the same age group who do not undergo amniocentesis. Furthermore, in amniocentesis, diagnosis is not always available, diagnostic errors, though minimal, do occur, and needle insertion may be associated with increased fetal loss. Two controlled studies have shown an increased number of cesarean sections in women who underwent amniocentesis. Although the risks may be low, patients must not be advised to undergo a procedure which might do more harm than good. (3 refs.)

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1807 PEAKMAN, DAVID C.; & ROBINSON, ARTHUR. Indications for chromosome analysis: Effect of new banding techniques. *Journal of Pediatrics*, 88(1):166-167, 1976. (Letter)

Using new chromosome banding techniques, 7 cases with nonspecific MR and major or minor physical stigmata, previously reported to have normal karyotypes, have been shown to have chromosomal abnormalities. Three have additional chromosomal material and 4 have deletions. Chromosomal analysis in now indicated in a wider variety of cases with developmental problems. (1 ref.)

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1808 **NIERMEIJER, M. F.; SACHS, E. S.; JAHODOVA, M.; TICHELAAR-KLEPPER, C.; KLEIJER, W. J.; & GALJAARD, H.** Prenatal diagnosis of genetic disorders. *Journal of Medical Genetics*, 13(3):182-194, 1976.

Prenatal diagnoses were performed in 350 pregnancies at risk for a chromosomal aberration (226), X-linked disease (43), neural tube defect (47), or 1 of 11 different metabolic diseases (34). Karyotyping or biochemical assays of cultured amniotic fluid cells and analysis of alpha-fetoprotein in the amniotic fluid supernatant were done after amniocentesis in each case. Selective abortion was performed as a result of the prenatal diagnosis in 36 cases with chromosomal (10) or metabolic (2) abnormalities, neural tube defect (3), or the presence of a male fetus in pregnancies at risk for an X-linked disease (21). In 90 percent of the cases, the pregnancies were continued knowing that the risk of a particular genetic disease was eliminated. Transabdominal amniocentesis in the fourteenth to sixteenth week was concluded to be harmless to the mother. Prenatal diagnosis appears to offer a promising alternative for parents who are at risk of having a child with a genetic disease which can be detected in amniotic fluid or in cultured amniotic fluid cells. (85 refs.)

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Genetics
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1809 **CHISWICK, MALCOLM L.; D'SOUZA, S. W.; & OCCLESHAW, J. V.** Computerized transverse axial tomography in the newborn. *Early Human Development*, 1(2):171-180, 1977.

Structural intracranial lesions were detected by computerized transverse axial tomography (CAT) in 6 out of 7 babies (aged 6 days–8 weeks) with abnormal neurological signs. The remaining baby demonstrated clinical features of having suffered bilirubin encephalopathy. Three of these children had suffered perinatal asphyxia. The lesions were noted as hydranencephaly, cerebral agenesis with grossly dilated lateral ventricles, unilateral cerebral edema, subarachnoid cyst, or localized cerebral atrophy. One case of hydranencephaly was diagnosed previously by an abnormal skull transillumination. Nearly all the children had neurological sequelae. (13 refs.)

Medical Neonatal Unit
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Manchester, England

1810 **MITCHELL, GILLIAN; FIELD, BARBARA; & KERR, CHARLES.** Biochemical differences between amniotic fluid and maternal urine. *British Medical Journal*, 1(6064):811-812, 1977. (Letter)

Urea, creatinine, and alpha-fetoprotein concentrations were measured in maternal urine and in amniotic fluid collected from 30 patients undergoing second trimester amniocentesis. Biochemical differences between maternal urine and amniotic fluid were clearly established by the sharply differing concentrations of urea, creatinine and alpha-fetoprotein in each fluid. Since all amniotic fluid is tested for alpha-fetoprotein regardless of the reason for amniocentesis, an abnormally low level of this protein leads to suspicion that the specimen is in fact urine. If this is further confirmed by high urea and creatinine concentrations in the fluid obtained, the patient may be recalled for another amniocentesis. In a series of over 500 second trimester amniocenteses, 7 specimens of urine were inadvertently collected. A low alpha-fetoprotein concentration in each sample led to further testing. Urea and creatinine concentrations fell within the maternal urine range in each case. Two fetuses out of 7 had neural tube defects: 1 had an open meningomyelocele and 1 was an anencephalic.

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Social Medicine
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New South Wales, Australia

1811 DE QUIROS, JULIO B. Diagnosis of vestibular disorders in the learning disabled. *Journal of Learning Disabilities*, 9(1):39-47, 1976.

Research findings on vestibular disorders and related postural disturbances among learning disabled children and 3 diagnostic criteria for assessing vestibular disabled children are discussed. Early diagnosis of vestibular-proprioceptive disintegration based on a careful neurolabyrinthine examination including caloric and tuning tests could alert physicians, parents, clinicians, and educators to the needs for modifications in the child's learning environment and for early therapeutic intervention. (108 refs.)

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1812 ROMER, FRODE K. Difficulties in the diagnosis of bacterial meningitis. *Lancet*, 2(8033):345-346, 1977.

Of 104 patients with bacterial meningitis admitted to a hospital, only 50 percent had been correctly diagnosed prior to admission, even though distinct meningeal signs were apparent in 76 percent. Antibiotic therapy had been initiated prior to admission in 30 patients, but this did not affect the ability to make a bacteriological diagnosis. The duration of illness before admission was longer in patients given antibiotics than in untreated patients. Of 108 patients with lymphocytic meningitis, 95 percent were correctly diagnosed. Clinical findings in bacterial meningitis are difficult to interpret prior to hospital admission. (9 refs.)

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1813 HOBBINS, JOHN C.; & MAHONEY, MAURICE J. Fetoscopy in continuing pregnancies. *American Journal of Obstetrics and Gynecology*, 129(4):440-442, 1977.

Fetoscopies were performed during the second trimester in 28 patients whose fetuses were at risk for hemoglobinopathies (beta thalassemia major or sickle cell disease) or short-limbed dwarfism (Ellis-Van Creveld syndrome). Although 6 patients required repeat fetoscopies, diagnostic information was obtained in all but 2 of the patients studied. An adequate sample of fetal blood for study of globin-chain synthesis was obtained in 23 of 25 patients in whom blood sampling was attempted. On the basis of fetoscopic findings, 6 patients elected to terminate their pregnancies. In the 22 patients who continued their pregnancies, no fetal morbidity or maternal complications were associated with the fetoscopic procedure. (7 refs.)

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1814 CONTRONI, GUIDO; RODRIGUEZ, WILLIAM J.; HICKS, JOCELYN M.; FICKE, MARION; ROSS, SYDNEY; FRIEDMAN, GAIL; & KHAN, WAHEED. Cerebrospinal fluid lactic acid levels in meningitis. *Journal of Pediatrics*, 91(3):379-384, 1977.

Levels of cerebrospinal fluid (CSF) lactic acid were determined in 396 patients suspected of having meningitis, using gas liquid chromatography and an enzymatic Monotest lactate test. Lactate levels greater than the upper limits of normal were found in CSF specimens from all 62 patients with a bacterial or mycoplasma etiology. Specimens from 334 patients with no bacterial involvement gave values within the normal range. The duration of elevated CSF lactate values in patients with bacterial involvement coincided with the clinical response to therapy. Determination of lactic acid by either method proved to be a rapid and reliable diagnostic test for the early detection of untreated or partially treated pyogenic meningitis. The Monotest lactate test has a practical advantage over gas liquid chromatography in that it does not require expensive equipment, CSF deproteinization, or a large CSF sample. (20 refs.)

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1815 **RICHARDSON, MIRIAM M.; *BEAUDET, ARTHUR L.; WAGNER, MILTON L.; MALINI, SRINI; ROSENBERG, HARVEY S.; & LUCCI, JOSEPH A., JR.** Prenatal diagnosis of recurrence of Saldino-Noonan dwarfism. *Journal of Pediatrics*, 91(3):467-471, 1977.

Saldino-Noonan dwarfism was diagnosed prenatally in a couple who had had 3 spontaneous abortions and 1 child with Saldino-Noonan dwarfism who died within 10 minutes of birth. Radiographic examination at 19 weeks showed no long bones, and ultrasound examination demonstrated oligohydramnios. The infant was carried to term and born alive, but died of respiratory insufficiency within minutes of birth. Postmortem examination confirmed the diagnosis of Saldino-Noonan dwarfism. Family history in this case supports an autosomal recessive etiology and raises the possibility of lethality early in utero. (10 refs.)

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1816 **GOLBUS, MITCHELL S.; HALL, BRYAN D.; FILLY, ROY A.; & POSKANZER, LUCILLE B.** Prenatal diagnosis of achondrogenesis. *Journal of Pediatrics*, 91(3):464-466, 1977.

A couple was counseled that they were probably carriers of an autosomal recessive gene causing fetal dwarfism after the woman's second pregnancy ended in spontaneous abortion and third and fourth pregnancies ended with stillborn deliveries of fetuses with poorly developed cranial bones and rhizomelic and mesomelic dwarfism. Amniocentesis performed at 14 weeks gestation showed depressed alkaline phosphatase activity in the fluid but was not considered diagnostic of hypophosphatasia. Roentgenograms at 20 weeks gestation suggested poor fetal ossification and an enlarged fetal head. Angiographic examination clearly demonstrated dwarfing of all 4 limbs and an abnormally small thorax. Following termination of the pregnancy, the fetus was found to have rhizomelic and mesomelic dwarfism, achondrogenesis, and histopathic features compatible with the Parenti-Fraccaro type achondrogenesis. (17 refs.)

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1817 **LADDA, ROGER; HILDEBRANDT, RICHARD; & DOBELLE, YVONNE.** Sex chromosomal mosaicism undetected by prenatal study. *Journal of Pediatrics*, 90(5):841, 1977. (Letter)

A case of sex chromosomal mosaicism in which the anomaly was undetected antenatally is described. A 38-year-old mother of 2 healthy children was advised by her physician to have amniocentesis for advanced maternal age, specially for Down's syndrome. The patient had an amniocentesis at 15 weeks gestation. Complete chromosomal analysis of 28 cells revealed a 46,XY karyotype. Five more cells had 45 chromosomes but none of these cells lacked a sex chromosome. At birth, the newborn infant exhibited ambiguous genitalia. Chromosome analysis of 50 peripheral leukocytes showed mosaicism, 45,X in 8 cells and 46,XY in 42 cells. Fibroblast cultures from 2 sites and testis revealed high percentage of cells with monosomy X. Later the fibroblasts from the original amniocentesis were reanalyzed and all cells were found to be normal. It is concluded that this is an example of extreme selection of cells that may occur in amniotic fluid. Prospective parents should be made aware of the pitfalls of prenatal diagnostic studies to temper their reaction to an unexpected result.

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1818 **SELLER, MARY J.; DUMON, J. E.; & VANDERHEYDEN, J.S.D.** Amniotic fluid AFP in multiple pregnancy. *British Medical Journal*, 1(6076):1600, 1977. (Letter)

In 14 cases of normal twins, the amniotic fluid alpha-fetoprotein (AFP) levels were within the normal range for singleton pregnancies but

maternal serum AFP levels were elevated. This is consistent with the fact that a very high proportion of twins (98 percent) are in separate amniotic sacs. At the placental interface, AFP produced by 2 fetal livers passes into the maternal compartment, thereby accounting for elevated maternal serum AFP. In a patient who underwent amniocentesis at 30 weeks because of equivocal ultrasound findings, the AFP level of the amniotic fluid was 9 μg/ml. The patient was subsequently delivered of twins who were joined side by side with a single large multilobed liver. Thus, in a situation where there were the equivalent of 2 livers in a single amniotic sac, AFP level was elevated. Since most multiple pregnancies are not monoamniotic, AFP values in most multiple pregnancies should resemble those of singleton pregnancies. (1 ref.)

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1819 **SHAPIRO, THEODORE; BURKES, LYNN; PETTI, THEODORE A.; & RANZ, JULES.** Consistency of "nonfocal" neurological signs. *Journal of the American Academy of Child Psychiatry,* 17(1):70-79, 1978.

The consistency of "soft" or "nonfocal" neurological signs over time was studied in 35 children hospitalized on a psychiatric ward and was replicated using 45 children on the ward. The mean chronological age in both studies was 9.2 years. Each child was tested on 3 different occasions during the first 8 days of hospitalization. When each group was divided into Ss less than 8 years of age and those who were older, a proportionately greater number of positive signs occurred in the younger group. Among the children in the older group, those diagnosed as childhood schizophrenics were more likely to show 3 or more nonfocal signs. In general, the greatest inconsistency of nonfocal neurological signs was found in the most immature and neuropsychiatrically impaired Ss. These findings were verified in the initial and replication studies. The Cochran Q analysis of variance demonstrated general consistency of nonfocal neurological signs. This report presents new data to support the continued use of such signs in combination with a clinical examination in the psychiatric evaluation of children. (25 refs.)

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1820 **BROCK, D. J. H.; & GOSDEN, CHRISTINE.** Are second-trimester amniotic fluids being properly examined? *Lancet,* 2(8049):1168-1169, 1977.

Comprehensive examination of amniotic fluid and the need for evaluation of amniotic-fluid protocols in antenatal diagnosis laboratories are discussed. Fetal karyotyping is traditionally performed in cases of advanced maternal age and previous history of chromosome abnormality. Increasing numbers of diagnostic amniocenteses are being performed because of elevated maternal-serum alphafetoprotein (AFP) values in order to diagnose fetal neural-tube defect by fetal AFP assay in the supernatant fraction of the amniotic fluid. A small series of rapid, simple tests on samples of whole amniotic fluid are recommended. Samples of whole amniotic fluid are needed to recognize and assess blood-stained fluids and to diagnose neural-tube defect in a blood-stained fluid. Routine estimations of total cell counts, viable cell counts, and the ratio of viable to total cell counts in whole amniotic fluid are useful for diagnosing fetal urogenital atresia, intrauterine death, and possibly other fetal abnormalities. A proportional count and a morphological examination of rapidly adherent amniotic-fluid cells are recommended to assist in diagnosing fetal neural-tube defects. (9 refs.)

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1821 American Orthopsychiatric Association. Developmental assessment in EPSDT. *American Journal of Orthopsychiatry,* 48(1):7-21, 1978.

EPSDT (Early and Periodic Screening, Diagnosis and Treatment), as currently constituted, cannot adequately meet the urgent developmental needs of the poor children it is meant to serve. An American Orthopsychiatric Association study initially aimed at the preparation of a guide for state and local administrators and service providers

responsible for EPSDT developmental assessment and treatment has shown that a range of problems, primarily administrative and professional, makes a guide to broad-scale implementation unfeasible at this time. Children in poverty are not being served sufficiently or appropriately by existing service structures, and their special needs require the development of a range of innovative approaches and instruments. In isolated pockets in various parts of the country, where small groups of children from fairly homogeneous populations are being served well, some positive outcomes of developmental screening, diagnosis, and training are being achieved. Guides for an effective national program should be explored in small, carefully planned EPSDT pilot programs aimed at enhancing individual children's strengths to help offset developmental weaknesses.

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1822 **MOORE, BEATRICE D.** Implementing the developmental assessment component of the EPSDT program. *American Journal of Orthopsychiatry*, 48(1):22-32, 1978.

Developmental review is a total process. The first two stages are "screens" in the sense that they identify people needing closer review, but with emphasis on the balance of strengths and weaknesses. Stage Three should include detailed aspects of the biological, psychological, family, and environmental/social/cultural domains. The three stages are a means to the end of early detection of children who may need special help or the benefits of closer attention. The legislation authorizing EPSDT (Early and Periodic Screening, Diagnosis and Treatment) makes it national policy that the development of our children be safeguarded so as to ensure that every child reaches maturity functioning at a maximum level of development. This goal constitutes more than the finding, the study, and the treatment of disease. While no set of uniformly acceptable review procedures is currently available, the American Association of Psychiatric Services for Children has proposed specific criteria for instruments to be used in the different stages of the process, whether the review is direct, with the child, or indirect, through the parent or other caregiver. (6 refs.)

Office of Child Health, Medicaid Bureau
Health Care Financing Administration
Department of Health, Education, and Welfare
Washington, D.C.

1823 **HERSH, S. P.** Sweden's approach to health screening for preschool children. *American Journal of Orthopsychiatry*, 48(1):33-39, 1978.

Parts of the report entitled "Sweden's Health Screening Program for Four-Year-Old Children" are particularly relevant to EPSDT (Early and Periodic Screening, Diagnosis and Treatment), developmental assessment and the future Child Health Assessment Program (CHAP) in the United States. The Swedes proceeded in an orderly manner when they perceived a serious drop in the contacts of 4-7-year-olds with the health care system. They first gathered information and then launched a thoughtful planning process utilizing a sound data base. Intelligent advocacy with the local governments and their citizens occurred simultaneously. Delineations were made of where trained professionals and nonprofessionals were needed, and parents' input through questionnaire replies and interviews became a critical screening modality, especially as applied to developmental assessment issues. The approach utilized by the Swedes to develop a screening system for 4-year-olds contains techniques leading to the development of a solid, popularly supported health care system. A system with such characteristics must be the goal of any eventual CHAP and planned national health insurance coverage. (4 refs.)

National Institute of Mental Health
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1824 **SCHUCHMAN, HERMAN.** Toward assuring confidentiality of records in large-scale assessment programs. *American Journal of Orthopsychiatry*, 48(1):71-76, 1978.

Experience to date indicates that programs such as EPSDT (Early and Periodic Screening, Diagnosis and Treatment) are likely to produce a splitting of responsibility among governmental agencies which will result in multiple records and, thus, problems of maintaining confidentiality. In addition, concerns over the eligibility of consumers and providers, control over payments for service, referrals for treatment, and sharing of information

can lead to duplication, overlaps, and confusion. Most states can easily implement the simple screening tests and handle the records well, but few states have the resources to place responsibility for educational, social, and psychological evaluations within a single agency. The data collected in these areas also will require more control, since they contain information about parents and about the child which is subject to abuse. As yet, there is no sufficient experience to suggest guidelines for a national assessment program which can carry out its purpose without compromising confidentiality. Pilot programs would provide an excellent opportunity to test and develop procedures and policies. (5 refs.)

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1825 Children's Defense Fund of the Washington Research Project, Inc. EPSDT in practice: what's happening in the field? *American Journal of Orthopsychiatry*, 48(1):77-95, 1978.

A study of five local EPSDT (Early and Periodic Screening, Diagnosis and Treatment) programs in Essex County (Newark), New Jersey, Florence County, South Carolina, Genesee County (Flint), Michigan, Oktibbeha County, Mississippi, and Suffolk County (eastern Long Island), New York has indicated that EPSDT is presently ineffective in identifying, referring, and treating children with developmental difficulties. Clearly, the developmental assessment portion of EPSDT is one of the least understood and least implemented parts of the program. The manner in which EPSDT services are delivered puts further limitations on what the program can do for children. Given these dilemmas, it appears that developmental screening may be carried out best within the context of routine, comprehensive pediatric assessment. In providing children with such comprehensive assessments, EPSDT will fulfill a vital function in finding and getting services to children with certain problems which could critically affect their development. Through this cautious approach there is much less danger of careless implementation which could result in damage to children. On the other hand, the benefits of assessing selected aspects of growth and development would be retained.

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1826 **GIBSON, GUADALUPE.** An approach to identification and prevention of developmental difficulties among Mexican-American children. *American Journal of Orthopsychiatry*, 48(1):96-113, 1978.

EPSDT (Early and Periodic Screening, Diagnosis and Treatment) programs have the potential to both hurt and help Mexican-Americans. Health services have frequently been insensitive to Chicano needs, but mental health services have been even worse. The provision of relevant services necessitates a clear understanding of the bilingual-bicultural existence of Chicanos. This understanding is imperative to an understanding of Chicano educational needs, too. The mentality which views Chicanos as inherently inferior still prevails. Thus, it is essential that EPSDT programs be monitored scrupulously to ensure that they do not create a new version of colonialism. The use of diagnostic and treatment procedures which reinforce the already entrenched stereotypic thinking about Chicanos or devalue the Chicano culture, such as testing instruments which are ethnocentric and irrelevant to the Chicano experience, can be a major pitfall. On the other hand, well-funded programs with sufficient staff who can serve as advocates and establish linkages with other programs can be instrumental in providing screening and remedial services responsive to the needs of Mexican-Americans and in promoting social change. (117 refs.)

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1827 **BRADLEY, ROBERT H.; & CALDWELL, BETTYE M.** Screening the environment. *American Journal of Orthopsychiatry*, 48(1):114-130, 1978.

Use of environmental as well as developmental measures in screening high-risk children may provide a solution to some of the problems of EPSDT (Early and Periodic Screening, Diagnosis and Treatment) and similar programs. Success in identifying children with developmental problems has been limited, and many screening tests and developmental scales have been found to be seriously defective. Sufficient cross-validation and follow-up studies have not been done, and too little attention has been paid to measurement problems affecting such instruments. Among

recent efforts made to refine environmental measurement techniques, the Bloom influence, the Barker-Wright method, various eclectic approaches, and Caldwell's HOME (Home Observation for Measurement of the Environment) Inventory have been prominent. Few studies have involved the use of an environmental measure to screen for developmental delay, however. The significance of environmental processes for a child's development may depend considerably on the particular environmental context in which they are manifested. Much more research on the impact of environmental setting variables is badly needed. (73 refs.)

Center for Child Development and Education
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1828 **WEBB, J. N.** Prenatal diagnosis of Duchenne muscular dystrophy. *Lancet*, 2(8029):140, 1977. (Letter)

Care should be exercised in using degenerative muscle changes to diagnose Duchenne muscular dystrophy as degenerative changes can occur in the myotubes of normal human fetuses. Muscle cell death in normal fetuses occurs on a large scale primarily between 10 and 16 weeks gestation. Normal muscle degeneration may itself be the dystrophic process if for some reason the cell-death switch is not turned off or if cell death is activated at the wrong time. Further studies of the muscles of dystrophic or at-risk male fetuses might profitably include electronmicroscopy besides histology. (6 refs.)

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1829 **ANDRES, JOEL M; LILLY, JOHN R.; ALTMAN, R. PETER; WALKER, W. ALLAN; & *ALPERT, ELLIOT.** Alpha$_1$-fetoprotein in neonatal hepatobiliary disease. *Journal of Pediatrics*, 91(2):217-221, 1977.

Serum alpha-1-fetoprotein (AFP) concentrations were measured in 52 infants and neonates with neonatal hepatitis syndrome, biliary atresia, and other hepatopathies (choledochal cyst, paucity of the intrahepatic bile ducts, cryptogenic cirrhosis, alpha-1-antitrypsin deficiency, glycogen storage disease, and biliary hypoplasia). The mean serum AFP concentration was significantly greater in patients with neonatal hepatitis than in patients with biliary atresia or other hepatopathies. Serum levels greater than 35μg/ml in infants 1 to 4 months of age suggest the diagnosis of biliary atresia, while levels below 10μg/ml in infants less than 4 months of age suggest the diagnosis of biliary atresia or hepatopathies other than neonatal hepatitis. The variable and significant overlappings of serum AFP values between 10 and 35μg/ml limit the diagnostic value of AFP estimation in distinguishing the neonatal hepatitis syndrome from biliary atresia. (15 refs.)

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1830 Diagnostic amniocentesis in early pregnancy. *British Medical Journal*, 1(6074):1430-1431, 1977. (Editorial)

Amniocentesis performed from the 15th week of pregnancy may allow 3 groups of fetal anomalies to be detected: all chromosome abnormalities; 60 inborn errors of metabolism; and neural tube defects. The performance of amniocentesis implies a commitment on the part of the physician and the patient to proceed to an abortion if an abnormality is detected. Advances in techniques of midtrimester termination are believed effective and safe enough to commend this practice. Maternal risks associated with the technique are minimal, the main significant problem being isoimmunization of an Rh negative mother. With respect to fetal risk, a recent study demonstrated no significant increase in fetal loss as compared with normal controls. An expansion of services may be required if other studies confirm that amniocentesis can be carried out without jeopardizing the normal fetus. (16 refs.)

MEDICAL ASPECTS – Prevention and Etiology (General)

1831 **INGALLS, ROBERT P.** Poverty, race, and mental retardation. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook.* New York, New York: John Wiley & Sons, 1978, Chapter 7, p. 161-187.

Racial minorities are overrepresented among the functionally MR. The issue of the relationship between social conditions, race, and school failure has occupied the attention of more scholars, researchers, and educators than has any other single issue in the 1960's and 1970's. Nevertheless, the solution to the problem of school failure among blacks, Hispano-Americans, and the poor in general is not much closer now than it was 10 years ago. There are three theories concerning why children raised in poverty have such a dismal record of school achievement. The most widely accepted theory is a version of the cultural deprivation hypothesis, which states that certain aspects of parental child-rearing style and the general environment of poverty predispose these children to failure. A second theory, one not widely supported today, is that intellectual potential is determined to a considerable extent by heredity. The third theory suggests that low-income and minority children only appear to have an intellectual deficit because they are being measured with a white, middle-class yardstick.

1832 **INGALLS, ROBERT P.** Biological causes of mental retardation. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook.* New York, New York: John Wiley & Sons, 1978, Chapter 5, p. 103-138.

MRs frequently are subdivided into the organically MR, those for whom there is evidence of organic abnormalities which result in diminished mental abilities, and the culturally, familially, or functionally MR, those for whom there is no apparent biological or medical cause for their diminished mental abilities. Rubella, syphilis, cytomegalovirus, and toxoplasmosis are among the various microorganisms which can infect the developing embryo or fetus and cause permanent abnormalities, including MR. Encephalitis and meningitis, if they infect a growing child, can result in brain damage and MR. Several types of poisons and various complications of the birth process itself can result in brain damage and MR, as can certain types of brain injuries suffered after birth. Occasionally an individual is born with an inherited inability to metabolize certain substances, and the result can be MR. Tay-Sachs disease always results in SMR and an early death. Disorders of nutrition, gross brain disease (postnatal), unknown prenatal influences, chromosomal abnormalities, and gestational disorders are other major categories of organic MR.

1833 **BOWEN, PETER.** Genetic factors in mental retardation. In: Das, J. P.; & Baine, D., eds. *Mental Retardation for Special Educators.* Springfield, Illinois: Charles C Thomas, 1978, Chapter 1, p. 3-30.

Not all MR is genetic, and not all genetic types of MR are associated with a high risk of recurrence. Chromosomal abnormalities are among the most frequent of the known causes of MR, but the risk of recurrence is often relatively minor. On the other hand, most disorders caused by a mutant gene are rare, but the risk of recurrence may be as high as 25 or 50 percent. It is the task of the genetic counselor to estimate the risk associated with a particular type of MR and to discuss this information with the parents. Empirically derived risk figures are available for a number of characteristic MR syndromes for which a genetic basis has not been conclusively shown. Early prenatal diagnosis is possible for chromosomal abnormalities such as Down's syndrome and an increasing number of genetic defects. These tests are performed with a view to abortion of a fetus with a serious and untreatable disorder, and this practice has gained widespread acceptance. Still in its infancy, screening for carriers of genetic diseases is currently being applied on a limited scale to such disorders as Tay-Sachs disease. Ethical guidelines must be applied to these procedures to prevent their misuse.

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1834 **DAS, J. P.** The disadvantaged child. In: Das, J. P.; & Baine, D., eds. *Mental Retardation for Special Educators.* Springfield, Illinois: Charles C Thomas, 1978, Chapter 7, p. 135-158.

The question whether or not the disadvantaged child suffers from a deficit or is merely different continues to be controversial. A number of psychologists have maintained that the single contributing factor for cultural deprivation is the poor verbal and intellectual environment in the early life of the disadvantaged child. The gap between sensorily deprived animals and those which are reared normally has been found to begin to narrow as the deprived animal is increasingly exposed to a normal environment following its early exposure to a restricted one. This does not happen in the case of human children, however. The gap between a culturally disadvantaged child and a nondisadvantaged child may grow with chronological age and exposure to normal classroom learning. At least in verbal ability, the gap grows slightly or is maintained. Two sociolinguists, Bernstein and Labov, recommend a reorganization of teaching procedures in the schools where children of low socioeconomic status study. A compelling need exists for enrichment programs for the disadvantaged in early childhood followed by compensatory education for the school-age child. (11 refs.)

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1835 **CLELAND, CHARLES CARR.** Clinical syndromes in mental retardation and multihandicapping conditions. In: Cleland, C. C. *Mental Retardation: A Developmental Approach.* Englewood Cliffs, New Jersey: Prentice-Hall, 1978, Chapter 10, p. 227-248.

A variety of clinical syndromes and multihandicapping conditions is often associated with MR. Down's syndrome, a chromosomal disorder initially referred to as Mongolian Idiocy, is the commonest of the chromosomal causes of MR and also the most common of the clinical types of MR. Other clinical types include hydrocephaly and microcephaly. Cretinism is a form of MR due to metabolic or nutritional dysfunction. Hurler's disease, or Hunter-Hurler syndrome, and Von Recklinghausen's disease are rare conditions; the former, a disorder of metabolism, is transmitted as an autosomal recessive, familial disease, while the latter, a gross brain disease, is inherited as an autosomal dominant. Cerebral palsy and epilepsy also are frequently associated with MR. Phenylketonuria, a common amino acid disorder occurring once in every 20,000 to 40,000 live births, is one of the many inborn errors of metabolism seen in children who are MR. The battered child syndrome, which is occurring with ever increasing frequency, has been recognized as an important cause of MR. (41 refs.)

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1836 **CRAWFORD, J. S.; & WOOD, B. S. B.** Quality of survival and perinatal care. *Lancet*, 1(8017):899-900, 1977. (Letter)

The quality of survival and the perinatal care which is offered to a mother who either contracts or is suspected of having contracted rubella in the first trimester of pregnancy is contrasted with that offered to mothers of low-birthweight infants, of very ill infants, of newborn infants who survive for weeks only, and of infants who survive with handicaps. Pregnant women with known or suspected rubella are offered and usually accept termination of pregnancy, even though chances are at worst 50/50 that the infant will be unaffected, in order to spare the mother from anxiety and from the possibility of bearing a damaged child. One in 2 or even 2 in 3 infants potentially infected with rubella are sacrificed. By contrast, only 1 in 5 infants with birthweight of 1,000 grams or less will develop normally, even with the assistance of effort, manpower, and expense in hospital neonatal units. Only 21 percent of the newborn infants who receive mechanical ventilation survive the neonatal period, and 15 percent of the survivors have severe or moderately severe neurological deficit at ages between 2 and 9 years. The definition of the limits of life-support and further follow-up of survivors are needed. (2 refs.)

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1837 **SCHULMAN, HAROLD; LIN, CHIN CHU; SALDANA, LUIS; & RANDOLPH, GEORGIA.** Quantitative analysis in the oxytocin challenge test. *American Journal of Obstetrics and Gynecology*, 129(3): 239-244, 1977.

The oxytocin challenge test was evaluated in 305 pregnancies. Results demonstrate that the intrauterine pressure profile mimics normal labor if contractions are evoked at a rate of 3 per 10 minutes. The first fetal heart rate (FHR) deceleration is likely to occur betwen the second and third effective contraction. A deceleration/contraction ratio of 10 percent or higher is a reliable predictor of abnormal FHR during parturition and an increased need for caesarean section. The oxytocin challenge test was not consistently correlated with Apgar scores, fetal blood studies, or perinatal mortality rate. The test is useful in timing the delivery of growth-retarded fetuses. (22 refs.)

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1838 **NOTATION, ALBERT D.; & TAGATZ, GEORGE E.** Unconjugated estriol and 15-hydroxyestriol in complicated pregnancies. *American Journal of Obstetrics and Gynecology*, 128(7):747-756, 1977.

A clinically useful role for serum estrogens as indicators of fetal welfare during high-risk pregnancies was not established by simultaneous radioimmunoassays of unconjugated estriol (E_3) and 15α-hydroxyestriol (E_4) in serial samples of maternal serum. Of 34 patients with various pregnancy complications, 16 patients had preeclampsia and/or hypertension; 6 had severe Rh-isoimmunization; 12 had diabetes mellitus; 3 had fetal deaths *in utero*; and 3 were twin pregnancies. Concomitant measurements of serum "total estrogens" (TE) by radioimmunoassay and urinary E_3 by gas-liquid chromatography were obtained in some patients. Findings indicated no clinically useful trends. E_4 was not consistently related to either E_3 concentrations in maternal serum and urine or to the clinical course and pregnancy outcome. (16 refs.)

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1839 **GABBE, S. G.; LOWENSOHN, R. I.; MESTMAN, J. H.; FREEMAN, R. K.; & GOEBELSMANN, U.** Lecithin/sphingomyelin ratio in pregnancies complicated by diabetes mellitus. *American Journal of Obstetrics and Gynecology*, 128(7):757-760, 1977.

The prognostic value of determinations of the amniotic fluid lecithin/sphingomyelin (L/S) ratio in 210 pregnancies complicated by Classes B, C, D, F, and R diabetes mellitus was studied. Correlation of L/S ratios with the occurrence of the respiratory distress syndrome (RDS) or hyaline membrane disease (HMD) revealed only a 3 percent incidence of compilations, which is no greater than that of the nondiabetic women studied. Four cases of RDS and 2 cases of HMD were observed in 200 patients with an L/S ratio of 2.0 or greater prior to delivery. Seven of 10 newborn infants with an antenatal L/S ratio of 1.5 to 1.9 developed RDS. An amniotic fluid L/S ratio of 2.0 or more appears to be a useful indicator of fetal pulmonary maturity, even in pregnancies complicated by diabetes mellitus. (15 refs.)

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1840 **WOOD, CARL; & RENOU, PETER.** Perinatal mortality as indication of obstetric care. *Lancet*, 1(8015):813-814, 1977. (Letter)

A detailed examination of perinatal mortality was undertaken to make this statistic more useful in the assessment of obstetric care. Statistics of fetal mortality were collected from the Queen Victoria Memorial Hospital between 1960 and 1974. Perinatal mortality did not change significantly over this period, although antenatal mortality rose and intrapartum mortality fell. The antenatal mortality rise was restricted to fetuses weighing less than 2,500g, while the decline in intrapartum mortality was mainly due to a reduction or mortality in fetuses weighing more than 2,500g. A

rise or fall in anoxic deaths was responsible for a rise in antepartum mortality or a decline in intrapartum mortality, respectively. These results demonstrate the importance of considering perinatal mortality in detail. The rise in antepartum death rates will be investigated further. The fall in intrapartum death rates in mature fetuses was believed to be due to improved health of the population, better obstetric care, and fetal diagnostic techniques. (2 refs.)

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1841 BAUM, J. D. Neonatal timer. *Lancet*, 1(8012):630, 1977.

The neonatal timer (Penlon, Abingdon), which aids in the calculation of an infant's postnatal age in hours, is described. The zero pointer on the central dial is placed opposite the time of birth on the day of birth (day 1), and at any given time of day the age in hours is shown on the corresponding point on the central dial over the subsequent days. The timer can be altered for subsequent use with other babies, is made of hard plastic, and can be used more than once, since the individual baby's details are written in pencil and can be wiped clean with a damp cloth. An illustration of the timer accompanies the report.

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1842 STANGER, PAUL; LISTER, GEORGE; SILVERMAN, NORMAN; & HOFFMAN, JULIEN I. E. Electrocardiograph monitor artifacts in a neonatal intensive care unit. *Pediatrics*, 60(5):689-695, 1977.

A group of 17 ECG monitor tracings was collected over a 3-year period from 4 different brands of commercial monitors to illustrate the various types of artifacts that may be found in a neonatal intensive care unit. The 5 categories of causes of artifacts were: patient-initiated movement, therapeutic manipulation of patient, monitor system failures, interference from other equipment, and unidentified electrical interference. A group of ECG tracings is provided to illustrate the artifacts. Guidelines for distinguishing artifacts from arrhythmias are described, as well as procedures for eliminating artifacts. (6 refs.)

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1843 SALMON, JAMES H.; HAJJAR, WALEED; & BADA, HENRIETTA S. The fontogram: a noninvasive intracranial pressure monitor. *Pediatrics*, 60(5):721-725, 1977.

The use of the applanation transducer (fontogram) to measure intracranial pressure (ICP) is described and the noninvasive technique is compared with use of a standard transducer equipped with a cannula to penetrate the ventricle. The fontogram takes advantage of the open fontanel of the infant to perform noninvasive measurements that minimize the risk of infection inherent in the invasive method. Twenty-one paired determinations performed resulted in a high correlation coefficient of .98, which seems to validate the applanation principle for measuring ICP. Fontanel pressure was determined in 35 normal newborn infants, with a mean pressure of 7.37mm Hg and SD of ±1.45. Three clinical studies are presented to demonstrate the usefulness of the fontogram in detecting increased ICP and monitoring the effectiveness of current methods of treating cerebral edema. (9 refs.)

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1844 BRAUNSTEIN, MARK L.; & SHUMAN, STANLEY H. Linking of medical records to form pedigrees. *Clinical Genetics*, 12(1):56-62, 1977.

An interactive computer system has been devised for the storage, retrieval, and statistical review of pedigree data. The system can integrate data from appropriate computerized medical records through the use of a common classification for patient morbidity. The linkage of pedigrees to clinical data extends the usefulness of both the pedigree and

the medical record in exploring disease patterns within the family. (8 refs.)

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1845 **GUTHRIE, MARJORIE.** Consumer viewpoint. In: Lubs, H.; & de la Cruz, F., eds. *Genetic Counseling* (a monograph of the National Institute of Child Health and Human Development). New York, New York: Raven Press, 1977, p. 561-565.

Medical geneticists have a right to tell the facts of genetic disease and genetic risk, but they must do so in an honest and accurate way so that all concerned individuals can begin to see and to live with reality. In any discussion of genetic problems, geneticists have to determine where, under what circumstances, and how they are judging counselees. Funds are limited, but they will be unlimited when the public is educated about what geneticists can, cannot, and wish to do. If presented with the facts in a truthful way, many people will be delighted to participate and will readily come forward to make some contribution. The populace recognizes the need for good genetic counseling, based upon human values. Everybody is important in this world; even MRs contribute something to those who are not MR. If geneticists will offer the public hope, whether in the form of amniocentesis or other technological advances, significant progress can be made in the United States in investigating genetic diseases and in helping affected families or families at risk.

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1846 **MACINTYRE, M. NEIL.** Need for supportive therapy for members of a family with a defective child. Lubs, H.; & de la Cruz, F., eds. *Genetic Counseling* (a monograph of the National Institute of Child Health and Human Development). New York, New York: Raven Press, 1977, p. 567-570; discussion, 571-572.

Twenty years' experience counseling individuals and families has demonstrated clearly that the birth of a defective child subjects the parents and the entire family to devastating and complex psychological and emotional stresses, representing an area of human suffering which is, at best, poorly understood and inadequately managed. It is widely recognized that, to some degree, all members in most of these families are affected by a deterioration of self-image and a breakdown in communication; only the rare professional recognizes the specific nature, magnitude, and complexity of these events, however. In the usually brief contact allowed by genetic counseling, the counselor is rarely made fully aware of the presence or intensity of overwhelming feelings of hopelessness; many parents even lack the opportunity to express their feelings during initial counseling. Specialized rehabilitative therapy with a therapist who is intimately familiar with and accepting of the feelings of denial, anger, guilt, fear, frustration, and despair associated with a reproductive catastrophe or the fear of having one is crucial to the achievement of psychological homeostasis. (3 refs.)

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1847 **LUBS, HERBERT A.** Artificial insemination. In: Lubs, H.; & de la Cruz, F., eds. *Genetic Counseling* (monograph of the National Institute of Child Health and Human Development). New York, New York: Raven Press, 1977, p. 573-575; discussion, 575-577.

The use of an artificial insemination donor is potentially an extremely powerful tool in the prevention of certain classes of inherited diseases. In autosomal dominant disorders, for example, almost 50 percent of the cases--those in which the male is the bearer of the dominant gene--could be prevented. With retrospective ascertainment, between 12 and 34 percent of autosomal recessive disorders might be prevented (principally the second affected in the family). In other instances where screening for heterozygotes is carried out, such as in Tay-Sachs or sickle cell disease, an even greater proportion of cases might be prevented. The great weight of the evidence is that artificial insemination is highly successful, both in regard to the frequency of pregnancies (even in infertile couples) and in that there are certainly no more, and very likely fewer, abnormalities in the

resulting children. Although the use of artificial insemination appears to be growing, only a small percentage of families who might lower their risk from 25 or 50 percent to close to zero by this route ever avails itself of the possibility. (3 refs.)

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1848 **FRASER, F. CLARKE.** Degree of directiveness. In: Lubs, H.; & de la Cruz, F., eds. *Genetic Counseling* (a monograph of the National Institute of Child Health and Human Development). New York, New York: Raven Press, 1977, p. 579-581.

Genetic counseling should be designed to meet the individual needs of the individual counselee. While no one wants to be directive in the sense of telling people not to have children or even telling them to have children, counselors should be allowed to exercise some degree of judgment as to when and how they may give advice when the counselee clearly wants it. Basically, nuances exist, and there are occasions when, through the counseling situation, it becomes apparent that a balance can be struck without directly telling the patient, "Yes, you should do this for your own good." When, after the counseling session, the patient stands with one foot through the door and says to the genetic counselor, "And, by the way, what would you do?", that heralds the failure of the particular counseling session. Counseling requires a tremendous effort and a great deal of time, for counselees have to be shown how decisions are made and how pros and cons are weighed.

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1849 **POTIER, M.; DALLAIRE, L.; & MELANCON, S. B.** Prenatal detection of intestinal obstruction by disaccharidase assay in amniotic fluid. *Lancet*, 2(8045):982, 1977. (Letter)

A deficiency in disaccharidase activity in the amniotic fluid can indicate fetal intestinal obstruction. A 24-year-old woman, whose previous child had meningomyelocele, had amniocentesis at 16 weeks of pregnancy. Alpha-fetoprotein levels were normal, and the cells had a normal male chromosomal pattern. The infant was born after 31 weeks gestation, weighed 1860g, and had a cranium circumference of 30cm. Soon after birth x-ray confirmed an esophageal atresia and imperforate anus. Disaccharidase activity in the previously frozen sample of amniotic fluid was absent or considerably lower than normal. Disaccharidase activity was also tested in the amniotic fluid in the case of a 14-week-old fetus at risk from the autosomal recessive type of multiple intestinal atresia. Normal disaccharidase levels were found, and a normal infant was delivered. If disaccharidase activity in amniotic fluid is used to detect anal imperforation or possibly atresia of the lower part of the fetal intestine, amniocentesis must be performed before 18 weeks of gestation, since disaccharidase activity drops abruptly at 20 weeks. (5 refs.)

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1850 **SELLER M.** Dark-brown amniotic fluid. *Lancet*, 2(8045):983, 1977. (Letter)

Of 26 patients who gave dark brown amniotic fluid samples at amniocentesis at 14-20 weeks gestation, 16 had alpha-fetoprotein (AFP) values within the normal range for gestational age (mean value 21microg/ml). Ten amniotic samples had very high levels (with a mean of 430microg/ml). The 16 patients with normal values delivered healthy infants at term. The 10 patients with raised levels aborted severely macerated fetuses 1.5-7 weeks after amniocentesis. Dark brown amniotic fluid should indicate possible problems only when associated with high AFP levels, which indicate that the fetus is dead or dying. In case of anencephalics the amniotic fluid is usually red and contains fresh red blood cells.

1851 **LETCHWORTH, A. T.; GORDON, Y. B.; LEIGHTON, P. C.; & KITAU, M. J.** Raised amniotic fluid concentrations of alphafetoprotein in a twin pregnancy. *British Medical Journal*, 1(6062):689, 1977.

Amniotic fluid alphafetoprotein (AFP) concentrations may be raised in twin pregnancy in the

absence of a fetal abnormality. In the case report presented, the raised amniotic fluid AFP concentration may have been due to the multiple pregnancy or to death of one of the fetuses. The amniotic fluid appeared clear and normal, which virtually excludes the possibility that the amniotic sac with the dead fetus was sampled. To avoid termination of a normal twin pregnancy on the basis of raised AFP levels, the following steps should be taken: (1) A normal range of AFP concentrations in multiple pregnancy should be obtained, although it will take many years before this will be available; and (2) The ultrasound examination should be repeated to exclude the possibility of a multiple pregnancy if there is an initial discrepancy between the gestational age assessed both clinically and by ultrasound. (5 refs.)

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1852 **HUDDLESTON, JOHN F.; PERLIS, HOWARD W.; MACY, JOSIAH, JR.; MYERS, RONALD E.; & FLOWERS, CHARLES E., JR.** The prediction of fetal oxygenation by an on-line computer analysis of fetal monitor output. *American Journal of Obstetrics and Gynecology*, 128(6):599-605, 1977.

A computer analysis system designed to monitor the relationship between each uterine contraction and any associated deceleration of the fetal heart rate, called the deceleration delay index (DDI), is similar to an animal model (rhesus monkeys) found to be predictive of fetal oxygenation. A clinical trial of 106 parturients showed that the DDI was predictive of human fetal hypoxia and might make it possible to avert severe neonatal depression and/or hypoxic brain damage through early detection. DDI was also highly correlated with another oxygenation-associated parameter, the one-minute Apgar score. (16 refs.)

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1853 **QUINN, PATRICIA O.; RENFIELD, MARILYN; BURG, CHERYL; & RAPOPORT, JUDITH L.** Minor physical anomalies: a newborn screening and 1-year follow-up. *Journal of The American Academy of Child Psychiatry*, 16(4):662-669, 1977.

Nine-hundred-thirty-three infants were screened for minor physical anomalies at birth and 123 of these were evaluated at 1 year of age. Anomaly scores at 1 year correlated highly with newborn scores. A low but significant correlation was found between irritability rating at 1 year and newborn and 1 year anomaly scores. The high anomaly groups showed a positive relationship between irritability and a family history of learning and/or behavior disorders, and overactivity and a family history of learning and/or behavior disorders. These findings suggest that such children may be identified early in life as being at risk for the development of irritability and/or hyperactivity at 1 year and possibly problem behaviors in later childhood. (15 refs.)

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1854 **MAZZI, EDUARDO; HERRERA, ALFREDO; & BERGMAN, MARY ANN.** Prevention of scalp abscesses secondary to fetal scalp monitoring. *Journal of Pediatrics*, 90(4):664-665, 1977. (Letter)

Five cases of scalp abscess secondary to scalp electrodes were observed among 273 monitored patients. To prevent this complication, a routine of shaving the area of the laceration and cleaning it daily with Betadine solution was instituted. In the following 278 consecutive fetal scalp monitorings, no abscess occurred. This seems to be an effective and easy way to prevent the developing of scalp abscesses and associated morbidity. (1 ref.)

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1855 **CEFALO, R. C.; SIMKOVICH, J. W.; ABEL, F.; HELLEGERS, A. E.; & CHEZ, R. A.** Effect of potential placental surface area reduction on fetal growth. *American Journal of Obstetrics and Gynecology*, 129(4):434-439, 1977.

The effect of reduction of placental surface area on fetal growth was examined in hemi-hysterectomized and normal ewes. Examination near term revealed that weight per cotyledon was significantly greater in the hemi-hysterectomized animals than in controls. The loss of a significant number of placentation sites was compatible with the production of term-sized fetuses. Since the difference between the number of cotyledons in the hemi-hysterectomized and control groups was significantly less than the number of implantation sites removed, the efficiency of implantation was improved. No changes in blood flows or oxygen consumption were observed. (8 refs.)

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1856 **MORISHIMA, HISAYO O.; YEH, MIN-NENG; NIEMANN, WENDELL H.; & JAMES, L. STANLEY.** Temperature gradient between fetus and mother as an index for assessing intrauterine fetal condition. *American Journal of Obstetrics and Gynecology*, 129(4):443-448, 1977.

The temperature gradient between fetus and mother (ΔT_{F-M}) was measured in 29 pregnant baboons to determine the effectiveness of the measure in assessing the intrauterine condition of the fetus. Temperatures in the fetal esophagus, scalp, and shoulder were higher than those in the maternal colon under steady-state conditions. During acute fetal stress induced by asphyxia secondary to occlusion of the umbilical cord, maternal aorta, or inferior vena cava, the ΔT_{F-M} increased, reflecting impaired heat dissipation from the fetus to the maternal compartment. When the stress on the fetus was subacute and prolonged, a decreased ΔT_{F-M} was observed, which probably reflects a diminution of heat production by the fetus as the metabolic rate was lowered. Changes in fetal temperature may be useful in clinical monitoring when asphyxial insult is of gradual onset but not when onset is sudden. (10 refs.)

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1857 **DAVIES, D. P.** Adequacy of expressed breast milk for early growth of preterm infants. *Archives of Disease in Childhood*, 52(4):296-301, 1977.

The early growth of preterm infants fed breast milk or unmodified cow's milk was studied. Ss were 28 infants with gestational ages of 28 to 32 weeks and 40 infants with gestational ages 33 to 36 weeks, all with birthweights above the 5th centile. Ss were randomly allocated to a feed of expressed breast milk or Ostermilk I (cow's milk formula). Weekly rates of head circumference growth, linear growth, and weight gain were evaluated over 2 periods: birth to 1 month, and 1 to 2 months. Results indicate that the younger Ss who were fed mature breast milk showed slower overall growth rates over the first month than those fed formula, although overall growth rates were similar for this group during the second month and for the older Ss during both periods. Infants born early in the last trimester of pregnancy seem to grow less well on mature breast milk than on the cow's milk formula during the first month of postnatal life. Whether a short period of poor growth in the early stages of life will adversely affect later growth and intellectual achievement is unknown, but since the accelerating phase of the brain growth spurt occurs at this time, it seems important to encourage the best growth possible.

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1858 **FIELD, TIFFANY M.; DABIRI, CYRUS; HALLOCK, NORMA; & SHUMAN, H. H.** Developmental effects of prolonged pregnancy and the postmaturity syndrome. *Journal of Pediatrics*, 90(5):836-839, 1977.

Early physical, motor, mental, and behavioral development of 40 postmature, postterm infants was compared to that of 40 control infants during the first year of life. The postmature, postterm infants had more prenatal complications and received lower Brazelton interaction and motor scores on assessment at birth. At 4 months, scores were lower on the Denver developmental scale and these infants were considered more difficult infants by their mothers as compared to ratings of the control infants. At 8 months, Bayley motor

scores were equivalent to those of the control infants, but mental scores were not as advanced. Mothers reported a higher incidence of illness and more feeding and sleep disturbances at this age. (20 refs.)

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1859 **HOLZER, DIETRICH.** [Is bleeding during pregnancy associated with brain damage in infancy?] *Zeitschrift fur Kinder- und Jugendpsychiatrie*, 4(3):233-243, 1976.

Inasmuch as bleeding during pregnancy is often noted retrospectively by mothers in child guidance clinics, the connection between such incidents and brain damage in infancy was studied. Specifically, the possibility of effects of bleeding during pregnancy on birthweight, duration of pregnancy, development in early childhood, and on intellectual, motor, physical, and behavioral disorders was investigated in 72 patients whose mothers had experienced this bleeding. In the majority of cases it seemed that bleeding without other difficulties of pregnancy or birth was as pathogenic as bleeding with subsequent abnormalities. (28 refs.)

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1860 **DROTAR, DENNIS.** A critique of the double-bind theory of infantile autism. *Journal of the American Academy of Child Psychiatry*, 17(1):46-48, 1978.

King's (1975) theory that infantile autism results from a maternal double-bind attitude and the intellectual and aggressive infant's defensive distancing and attempt to substitute for unfulfilled affectional needs has to be clarified and made more specific for scientific validation. King's data consisted of case records of 12 children with early infantile autism who were compared with control children. The records of the autistic children contained more observations of double-bind relationships than those of 2 control groups; however, original case descriptions may have been biased. King's observations were based on the end product of years of disturbed mother-infant interactions, yet even controlled retrospective studies generally cannot determine cause and effect in complex sequences of mother-child interactions. The double-bind theory ignores the implications of changes in the infant's repertoire. Moreover, it assumes a closed interactional system between infant and mother which ignores the potential importance of the father's and/or other caretaker's attachments in affecting the autistic disturbance. (15 refs.)

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1861 Postponing premature labour. *British Medical Journal*, 1(6069):1118-1119, 1977. (Editorial)

Prematurity is considered the most important avoidable cause of perinatal mortality and morbidity in Great Britain. Prevention is difficult, because identification of patients at risk selects only a few of the women who will eventually go into premature labor. With respect to treatment, a conservative approach may be followed by cessation of premature labor in between 40 to 70 percent of cases. Intravenous ethanol has been noted in one controlled trial to postpone labor more effectively than bedrest alone, but this has not been confirmed. Beta-sympathomimetic agents have been found to be more effective than bedrest or alcohol, but side effects limit usefulness. Independently of the method used, treatment should begin as soon as contractions begin, even if this may lead to treatment of some cases of false labor. (21 refs.)

1862 **WILLIAMS, T. H.; MICHELL, R. C.; LETCHWORTH, A. T.; & *NOBLE, A. D.** Early ultrasound examination in antenatal care. *Lancet*, 2(8049):1169-1171, 1977.

Early ultrasound examination was performed on 442 women early in pregnancy and was instrumental in deciding when and where to induce labor in 21.1 percent of the pregnancies. Results indicate that ultrasound is valuable when the menstrual history is abnormal or when conception follows the use of oral contraceptives. Ultrasound provided a more reliable estimate of the date of

delivery in 9.7 percent of the patients and was used to postpone or cancel induction of labor or planned cesarean section in 10.4 percent of cases. A comparison of groups of induced labor and spontaneous labor patients showed no major differences in Apgar score or in prolongation of labor. Neither prolonged labor nor need for cesarean section was increased in women induced for postmaturity. No cases of neonatal respiratory distress were found. Neonatal jaundice following induction was less common than in spontaneous labor, indicating that early interruption of pregnancy rather than induced labor or agents of induction are responsible. The low frequency of jaundice observed may be attributed to accurate prediction of expected date of delivery and subsequent decrease in numbers of premature babies born to mothers induced for postmaturity. (12 refs.)

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1863 Committee on Genetics of the American Academy of Pediatrics. SCHRIVER, CHARLES R.; FEINGOLD, MURRAY; MAMUNES; PETER; & NADLER, HENRY L. Screening for Congenital Metabolic Disorders in the Newborn Infant: Congenital Deficiency of Thyroid Hormone and Hyperphenylalaninemia. *Pediatrics*, Supplement, Volume 60, Number 3, Part 2, 1977, p. 389-404.

The initial reports of the Committee on Genetics of the American Academy of Pediatrics are presented on guidelines for screening the newborn infant for hyperphenylalaninemia (including phenylketonuria) and on screening for congenital hypothyroidism. A mechanism for supervising screening operations for any disorder from innovation through implementation and evaluation is presented. (39 refs.)

1864 **COLEMAN, LEE.** Problem kids and preventive medicine: the making of an odd couple. *American Journal of Orthopsychiatry*, 48(1):56-70, 1978.

While prevention of real diseases may be attainable through a medical approach, similar attempts to prevent make-believe diseases ("developmental disorders") will not only be ineffective but will further damage those who become the targets. Preventive medicine was adopted first by the mental hygiene movement, then by the child guidance and community mental health movements. There is nothing to be gained by minimizing the very real problems of children and their families. What is disturbing, however, is the increasingly brazen effort to make them into medical entities. Despite the fact that developmental disorders are not diseases, and the corollary that there are no valid screens and no valid diagnostic tests, treatment remains the goal. If the pressure to do something, whether from parents, school, family physician, probation officer, or social worker is already sufficient to make American children the most drugged in the world, things can only get worse when pressures from the Department of Health, Education, and Welfare and state health departments make it clear that, if treatment does not follow screening and diagnosis, penalties will. (35 refs.)

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MEDICAL ASPECTS — Etiologic Groupings
Infections and intoxications

1865 MOORE, MICHAEL R.; MEREDITH, PETER A.; & GOLDBERG, ABRAHAM. A retrospective analysis of blood-lead in mentally retarded children. *Lancet*, 1(8014):717-719, 1977.

The blood-lead status in the first 2 weeks of life of 77 children with MR of unknown etiology and paired controls identified in a study of Beattie et al. was determined by measuring blood-lead concentrations on cards used for testing phenylketonuria. Cards which belonged to 80 of a group of 77 children with MR of unknown etiology and 77 controls were identified (3 cards were unsuitable because insufficient blood had been applied initially). Twenty-four MR/control pairs were found. There was a highly significant trend towards higher blood-lead concentrations among the MRs, which correlated with water-lead concentrations in the maternal home during pregnancy. This association reflected principally intrauterine exposure with some postnatal exposure to lead. The results reinforce the probable association between lead exposure during pregnancy and the development of MR of otherwise unknown etiology. It is estimated that 1.7 million households in Britain are at risk. (29 refs.)

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1866 EL-GUEBALY, NADY; & OFFORD, DAVID R. The offspring of alcoholics: a critical review. *American Journal of Psychiatry*, 134(4):357-365, 1977.

Studies of the offspring of alcoholics are reviewed by age group, focusing on sample collection, criteria used for the diagnosis of parental alcoholism, and definitions of emotional disturbances. The occurrence of the full fetal alcohol syndrome (craniofacial defects, limb abnormalities, cardiovascular problems, growth deficiency, and developmental delay) appears to be uncommon, and the role of etiologic factors in the genesis of this syndrome is unclear. There have been few well designed studies; future studies should include a clear description of the characteristics of maternal alcoholism, a maternal control group, and detailed histories of life events significant for infant morbidity. Studies of preschool children of alcoholics have focused on the battered child syndrome, while those of grade-school children have been directed toward possible increased symptomatology and the use of community resources, the hyperactive child syndrome, and parental influence on personality patterning. Studies of adolescents with alcoholic parents have used a variety of sampling techniques, which may account for differences in findings among studies. Studies of genetic and environmental factors contributing to the behavior of offspring of alcoholics are hampered by the lack of clear definitions of alcoholism and other variables. But offspring of alcoholics seem to bear increased risk for serious psychosocial illnesses in adulthood. (70 refs.)

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1867 OUELLETTE, EILEEN M.; ROSETT, HENRY L.; ROSMAN, N. PAUL; & WEINER, LYN. Adverse effects on offspring of maternal alcohol abuse during pregnancy. *New England Journal of Medicine*, 297(10):528-530, 1977.

An evaluation of alcohol use in 633 pregnant women indicates that heavy drinking during pregnancy increases the risk of abnormality in offspring. On the basis of a questionnaire administered during the first prenatal visit, women were classified as heavy drinkers, moderate drinkers, or abstinent and rare drinkers. These results were correlated with findings of detailed pediatric, neurological, and developmental exami-

nations after delivery. Infants born to heavy drinkers had twice the risk of abnormality of those born to abstinent or moderate drinkers. Congenital abnormalities were found in 32 percent of infants born to heavy drinkers, 14 percent born to moderate drinkers, and 9 percent born to abstinent mothers. Microcephaly and multiple congenital anomalies were much more frequent in offspring of mothers classified as heavy drinkers, but no specific pattern of anomalies was observed. Nutritional intake, drug use, and sociologic factors were not significantly different among women in the 3 groups and do not account for these findings. (25 refs.)

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1868 **BLATTNER, WILLIAM A.; HENSON, DONALD E.; YOUNG, ROBERT C.; & FRAUMENI, JOSEPH F., JR.** Malignant mesenchymoma and birth defects: prenatal exposure to phenytoin. *Journal of the American Medical Association*, 238(4):334-335, 1977.

Malignant mesenchymoma developed in an 18-year-old male with cleft lip and palate whose mother had been treated with phenytoin during pregnancy. The mother had had seizures since age 13, had been receiving continuous phenytoin therapy since age 16, and had received phenytoin, 400 mg/day, throughout the 42-week pregnancy. The patient's birth was complicated by vaginal hemorrhage requiring an emergency cesarean section. He had left-sided cleft palate and lip, which was subsequently repaired. Growth and development were otherwise normal. Following combination chemotherapy for metastases, the patient experienced a 7-year disease-free interval, which is consistent with recent improvements in the treatment of soft-tissue sarcomas. Although the malignant mesenchymoma and birth defects may have been related by chance, the possibility of transplacental carcinogenesis by phenytoin should be considered, particularly since neuroblastoma was reported recently in 2 children with phenytoin-induced malformations. (11 refs.)

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1869 **POCOCK, STUART J.** Blood-lead in mentally retarded children. *Lancet*, 1(8024):1260-1261, 1977. (Letter)

Pocock disagrees with Moore and his colleagues and with Bisset and Smith about the analysis of the data in table 1 of their research report concerning blood-lead in MR. Pocock states that the Mann Whitney test given in the text of the Glasgow workers' paper is the proper test. Further statistical analyses are superfluous, and both the one-sample X^2 test and the two-sample X^2 test are inappropriate. He recommends a test for trend in the 2 x 5 contingency table. He considers Moore's justification for the weighted regression to be unsatisfactory since it seems to prejudge the existence of a relation between blood and water lead. Cause and effect should be considered in situations where the MR are living in poorer housing with high water lead before stating that water lead causes mental retardation. (1 ref.)

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1870 **RIGBY, E. P.; & *SACHS, HENRIETTA K.** Low lead levels and mental retardation. *Lancet*, 1(8008):421-422, 1977. (Letters)

The conclusion by David et al. that any rise in blood lead above 24.5μg/dl should be viewed as potentially noxious is not warranted. Investigation of the 93 children examined in that study has found 75 to be attending local normal schools. Lead concentrations for children rated as having above-average levels of intelligence were shown to be 23, 24, 30, and 38μg/dl, while the values for children rated as having below-average intelligence were 22, 23, 23, 23, 27 and 48μg/dl. These findings do not suggest that a blood-lead level of 24.5μg/dl or more in a child of preschool age is an indicator of future schooling difficulty. The normal range of blood-lead was designated by the American Academy of Pediatrics in 1969 as 15-40μg/dl. David et al. have lowered the ceiling to 24.5μg/dl as a result of conclusions based on data gathered from two groups of patients with similar IQs but distinctly different etiologies for their MR. (8 refs.)

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1871 **OBERMAN, J. WILLIAM; *KARSTEN, STEPHANIE; & PEACOCK, BENETA J.** The impact of a community action program against childhood lead poisoning: three years' experience of a neighborhood pediatric clinic. *Clinical Proceedings (Children's Hospital National Medical Center)*, 33(2):27-37, 1977.

A 3-year program of initial screening and follow-up for lead poisoning of preschool and early school-age children, coupled with educational and community action programs, resulted in a sharply reduced incidence of lead poisoning in children attending a neighborhood pediatric clinic in Washington, D.C. Over 700 children, the majority falling in the 1-5 years group, were initially screened for blood lead levels from June 1972 through May 1975; repeat screening was carried out in 315 children considered at high risk. There was a sharp drop in percentage of children with toxic blood lead levels (≥40mcg/dl) over the 3-year period: 48.0 percent (130/270) during 1972-73, as compared to 19.7 percent (38/193) during 1974/75. This drop was more pronounced in the 1-3-year-old group. Chelation therapy was given to a total of 37 children, only 18 of whom were found to have blood leads, ≥60mcg/dl at initial screening; the remaining 19 were treated on the basis of subsequent elevation of blood lead plus other laboratory and x-ray evidence of lead intoxication. Young children with toxic blood lead levels were much more likely to have a positive history of pica (4 out of every 5 children with blood lead levels ≥60mcg/dl had the disease). Springtime was generally associated with a low prevalence of toxic levels of lead; winter had the highest prevalence, in contrast to previous reports of higher levels during the warmer months. Supportive public relations efforts to enhance community awareness as well as more vigorous enforcement of the housing code are integral and essential parts of the screening program. (13 refs.)

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1872 **YU, WEI LIANG; VISLAY, SHIRLEY A.; & EDWARDS, RONALD E.** Is airborne lead from combustion of leaded gasoline a possible health hazard? *Clinical Pediatrics*, 16(9):791-794, 1977.

Persisting exposure to automobile fumes, even when sufficiently high to cause recurrent smog, does not raise the blood lead of children and adults. The average blood lead levels of 277 individuals of all ages tested at the Kaiser Foundation Hospital in Fontana, California, was 20mcg/100ml (range 6-44mcg). Findings suggest that the currently accepted normal upper limit of 40mcg/100ml blood may be too high. Blood lead levels of mothers and newborns at the time of birth are essentially identical. (20 refs.)

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1873 **WEINTRAUB, MICHAEL I.** Bacterial meningitis of the newborn. *Journal of the American Medical Association*, 238(2):127, 1977. (Letter)

While bacterial meningitis in the newborn is rare and is usually caused by gram-negative organisms, a series of recent reports has demonstrated the isolation and recognition of gram-positive organisms in both mother and child. These include group B streptococci, *Listeria monocytogenes*, and pneumococci. Furthermore, in view of the discovery of fatal neonatal meningococcal meningitis derived from an infected mother and fatal pneumococcal meningitis and endophthalmitis in a newborn whose mother also was infected, the time is ripe to encourage a national study of the problems of maternal colonization. This will not be an easy task, despite reports of maternal infection in up to 75 percent of cases. Maternal colonization may be symptomatic or asymptomatic, thereby escaping a physician's attention in the latter case. Furthermore, presumptive evidence of fetal involvement may not be present until several days after a presumed normal birth. (3 refs.)

1874 **GRUMBACH, KEVIN; BARINGER, J. RICHARD; & KLASSEN, TONI.** Herpes-simplex antigen in rabbit cerebrospinal fluid. *Lancet*, 1(8003); 149, 1977. (Letter)

A discussion is presented of the authors' use of the immunofluorescent technique on cerebrospinal fluid (CSF) leukocytes from rabbits with acute herpes simplex virus (HSV) encephalitis. Rabbit corneas were infected with HSV type I (Rodanus strain) to produce brainstem infection. Cisternal CSF taps were performed on anesthetized or killed animals 3-7 days after infection, and CSF cells were fixed in cold acetone. Results of 23 infected cases and 6 normal cases revealed 5 cases of positive fluorescence which were unambiguous, with bright green, diffuse fluorescence filling the cytoplasm of lymphocytes and monocytes, and easily distinguishable from the nonspecific fluorescence seen in eosinophils. Virus was not recovered from any CSF inoculated into cell cultures. Only 0.1-0.5 percent out of a total of 10,000-25,000 cells per slide were positive, and the remaining Ss failed to exhibit positive fluorescence. Several explanations are provided for the variation in fluorescence in different specimens. The detection of HSV antigen by immunofluorescent examination of CSF cells can be the basis of a reliable diagnosis when appropriate controls are performed, although HSV should not be ruled out as the encephalitic agent solely on the basis of negative immunofluorescence. (No refs.)

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1875 **KIESSLING, W. R.; YUNG, L. L.; HALL, W. W.; & *TER MEULEN, V.** Measles-virus-specific immunoglobulin-M response in subacute sclerosing panencephalitis. *Lancet*, 1(8007):324-327, 1977. (Letter)

Indirect solid-phase radioimmunoassay (IRIA) was used to examine measles-virus-specific IgM and IgG responses in sera and cerebrospinal fluid (CSF) of 20 patients with subacute sclerosing panencephalitis (SSPE) and of 2 control groups. High titres of antimeasles antibodies were found in sera and CSF of all SSPE patients regardless of the stage of disease, and antibody activity was found to be associated with both the IgM and IgG classes of immunoglobulins. A fluctuation of specific IgM antibodies was demonstrated during the disease. A higher specific IgM antibody response in CSF than in serum was evident in 7 (35 percent) of patients, which suggests that the specific IgM antibodies in CSF are locally produced. No measles antibodies were detected in the CSF of the control group, while serum specimens showed a normal distribution of antimeasles antibodies. The presence of specific IgM in the CSF can be taken as evidence of persistence of virus in the CNS and suggests that the sensitive IRIA be applied to several other CNS diseases in which a persistent viral infection has been implicated. (18 refs.)

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1876 **PACSA, A. S.; & PEJTSIK, B.** Impairment of immunity during pregnancy and antiviral effect of amniotic fluid. *Lancet*, 1(8007):330-331, 1977. (Letter)

Results from a study of 297 pregnant women in whom indirect immunofluorescence tests were used to measure serum levels of antibodies to herpes-simplex virus (HSV) and *Toxoplasma gondii*, and hemagglutination inhibition was used to determine serum levels of antibody to rubella virus, are presented. A control group from which samples were also collected consisted of 116 age-matched nonpregnant women using the IUD. Rubella antibodies were found in 73 percent of pregnant women at 12-20 weeks of gestation, but only 59 percent had antibodies at delivery, while 85 percent of controls had the antibodies. Humoral immunity to rubella virus was found to rise again to levels of early pregnancy as early as 30-45 days after delivery. The patterns of antibodies to HSV and *Toxoplasma* followed much the same trend, although neither dropped as far as rubella antibodies during pregnancy. These results suggest that pregnancy has a suppressant effect on humoral immunity. Amniotic fluid samples were collected from 44 pregnancies terminated at 11-14 weeks of gestation and examined for antiviral activity to HSV and poliovirus. An antiviral effect was found in 7 samples, which could be linked with the protein fraction of the amniotic fluid other than alpha$_1$-fetoprotein. (8 refs.)

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1877 Mercury in the environment. *Lancet*, 1(8007):344, 1977.

Several incidents involving mercury poisoning related to deaths in large numbers and brain damage in newborns are discussed. The United Kingdom has deliberately reduced the use of mercury in certain applications, and the majority of the population is subjected to levels which are well within the tolerable limits of 0.30mg per week proposed by the FAO and WHO. The Control of Pollution Act of 1974, when fully implemented, will require the cooperation of mercury-based industries by extending the powers of regional water authorities to control the discharge of toxic materials, including mercury, into rivers and coastal waters. (2 refs.)

1878 **FREESTONE, D. S.; & KNIGHT, P. A.** Safety of vaccines. *Lancet*, 1(8007):360-361, 1977. (Letter)

In discussing vaccine safety, distinctions should be made between inactivated vaccines, which have not been implicated as teratogens despite world-wide use for many decades, and live vaccines. Of suspect live vaccines, the influenza and rubella virus vaccines are important. But the results of transuterine intrafetal intracerebral administration of influenza vaccines do not seem relevant to the assessment of their teratogenicity in clinical use, since natural influenza in pregnant women has not been implicated as a cause of congenital hydrocephalus. Little evidence has been found that results of studies of embryotoxicity and teratogenicity in animals have influenced the clinical use of live rubella vaccines, and no authority or informed clinician would accept negative results from studies of live virus vaccines in animals as an assurance of safety in pregnant women. (6 refs.)

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1879 **DESSEMOND, M.; LAURENT, J. L.; CHAPPARD, D.; & ROBERT, J. M.** Is varicella virus teratogenic? *Lancet*, 1(8007):362, 1977. (Letter)

A 24-year-old healthy pregnant woman contracted varicella during the 5th week of pregnancy; the pregnancy was terminated 2 weeks later. The embryo was found to correspond with a pregnancy of 10 or 11 weeks upon histological examination. An abdominal-wall defect and an irregularly interrupted lumbar neural plate were evident. X-rays revealed that the mother had a defective lower spine with a sacral-closure defect but no skin defect. No evidence was found for the hypothesis of a monogenic inheritance of defect closure with variable expressivity. Maternal varicella was considered not to be compatible with teratogenic effect, since it occurred during 8th or 9th embryonic week. The possibility of a mutation with severe closure defects is suggested. (3 refs.)

Department of Medical Genetics
Hotel-Dieu Hospital
69002 Lyon, France

1880 **HUTCHINSON, D. N.; HESLING, A. G.; & DARLING, W. M.** Simultaneous bacterial and viral infections of meninges. *Lancet*, 1(8007):371, 1977. (Letter)

A female child aged 2 years 11 months admitted to hospital after a 3-day history of vomiting proved to have a dual infection of the meninges. A positive Kernig's sign was elicited, hemorrhagic spots were observed on her trunk, intracellular gram-negative diplococci were seen on a smear, and turbid fluid containing 21,000 white cells/ml was obtained at lumbar puncture. Bacterial cultures grew *Neisseria meningitidis* group B, and Echovirus type I was isolated in tissue culture; the child recovered uneventfully. Dual infection of the meninges seems to be rare, since this case was the only one among 68 cases of proven bacterial meningitis examined during the past 6 years. (1 ref.)

Departments of Pathology & Paediatrics
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1881 **COOVADIA, H. M.; WESLEY, A.; BRAIN, PETER; HENDERSON, L. G.; HALLETT, A. F.; & VOS, G. H.** Immunoparesis and outcome in measles. *Lancet*, 1(8012):619-621, 1977.

Immunological findings in 5 children who died

from measles and one who died from persistent bronchopneumonia are compared with those from 6 age-matched children who recovered from measles, 6 age- and race-matched healthy children, and lymphocyte counts from 19 children who died during the year preceding this study. The first group showed significantly lower absolute total lymphocyte-count (T and B cells) than the second group, as well as lower mean serum C3. The mean stimulating index of PHA-transformed lymphocytes in the first group resembled that in the second group, although both were significantly less than that in the other control group of healthy children, and the lowest in 2 children who died. In the retrospective study the mean lymphocyte-count in 19 children who died was 2117±375 cells/mm^3 significantly lower ($P<0.01$) than the mean value (4487±540 cells/mm^3) in 27 children who recovered. Results indicate that profound immunosuppression in measles chiefly affects the T and B cell subpopulations, has less severe effects on T cell function and C3 concentrations, and usually distinguishes between children who will die or develop chronic chest disease and those who will recover. (13 refs.)

Department of Paediatrics and
Child Health
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Congella 4013, Durban, South Africa

1882 **HALL, MARION H.** Folates and the fetus. *Lancet* 1(8012):648-649, 1977. (Letter)

Eleven cases of CNS malformation from a prospective study of a year's bookings in the city of Aberdeen are described in terms of type of malformation, gestation at booking, serum folate at booking, and parity. None of the mothers had taken folic acid. The mean booking serum-folate is 6.35ng/ml, compared with the multigravid mean of 6.72 (S.D.3.18) and with the mean booking level of 6.60 (S.D.2.88) for all primigravidae in this study. Serum-folate falls as pregnancy advances, and since only 6 out of 11 women booked before 20 weeks, it is clear that there is no difference between these women and those who bore children without malformations. This study represents the real situation more reliably than do other studies, such as one in which the patients were recruited on a voluntary basis before 13 weeks. (4 refs.)

Department of Obstetrics and
Gynaecology
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1883 **FALLON, R. J.** Group-B streptococci in the newborn. *Lancet*, 1(8012):651, 1977. (Letter)

A discussion is presented concerning why relatively few reports have appeared in British journals relating to the significance of group B streptococci as neonatal pathogens, compared with the increasing number of observations published in the American and Scandinavian literature. The use of a selective fluid medium which would tend to produce a much higher isolation-rate than would standard culture techniques explains the 25 percent carriage rate of group B streptococcus infections in women in the third trimester of pregnancy reported by American workers. In 1,350 vaginal swabs sent by general practitioners, a carriage rate of 7.5 percent was found in Glasgow by standard culture techniques without enrichment. Of 326 hemolytic streptococci (groups A, B, C, F, G, isolated from medical or general practice patients), 27 percent were Group B. Production of pigment on Columbia agar incubated in an atmosphere of hydrogen and carbon dioxide is useful in the rapid recognition of group-B streptococci from clinical sites. (4 refs.)

Department of Laboratory Medicine
Ruchill Hospital
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1884 **SPEIGHT, A.N.P.** Floppy-infant syndrome and maternal diazepam and/or nitrazepam. *Lancet*, 2(8043):878, 1977. (Letter)

Administration of diazepam to a mother during labor can produce primary or secondary apnea, hypotonia, poor sucking, risk of aspiration, and hypothermia in the newborn. These effects are usually noted in high dose situations prior to delivery but have been reported in long term low dose therapy. One case is described in which the mother took diazepam 5mgs 3 times daily throughout the pregnancy. The infant was floppy and unresponsive but improved slowly over a 10-day course. A second case involved the use of nitrazepam 10mgs nightly for sleep, 8 weeks prior to delivery. The infant was sleepy and reluctant to

breast feed over a 7 day period. Precautions for the physician with respect to these drugs are discussed. (2 refs.)

Children's Hospital
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1885 **RICHARDSON, J.** Suspected trans-placental Coxsackie infection. *Lancet*, 2(8043):877-878, 1977. (Letter)

The case of a woman is described who was well until the 37th week of her second pregnancy when she had a febrile illness with acute abdominal pain. The diagnosis of Bornholm disease was made. The patient delivered a seemingly normal infant who at 12 weeks of age showed a tendency to deviate his eyes and head to the left. Examination revealed a right-sided hemiparesis. The mother had at 7 months post-partum an antibody neutralization titer of 1:128 to Coxsackie B2 and 1:256 to Coxsackie B5. Computerized tomography of the central nervous system showed extensive cerebral atrophy of the left side. At 3 months of age the infant had an antibody neutralization titer of 1:256 to Coxsackie B2 virus. This titer fell in 4 months to 1:64. This evidence suggests intra-uterine infection of the infant and brain damage secondary to Coxsackie infection.

Department of Family and Community Medicine
University of Newcastle upon Tyne
Ryton, County Durham, England

1886 **PREECE, M. A.; KEARNEY, P. J.; & MARSHALL, W. C.** Growth-hormone deficiency in congenital rubella. *Lancet*, 2(8043):842-844, 1977.

Intrauterine growth retardation is considered common in congenital rubella and postnatal growth retardation may also occur. Two patients are described in whom growth hormone deficiency was associated with congenital rubella. The first patient presented with severe growth retardation at an early age and his clinical features would have been typical of growth hormone deficiency with or without features of congenital rubella. The patient had excessive subcutaneous fat, extreme short stature, and hypoplastic genitalia. The patient's response to growth hormone was considered very striking. The second patient showed fewer features of growth hormone deficiency and he was believed to be only partially growth hormone deficient. There also was a significant response to growth hormone administration. It is concluded that physicians should be aware that short stature in patients with congenital rubella may be due to growth hormone deficiency, and efforts at this diagnosis should be made early. (15 refs.)

Department of Growth and Development
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1887 **GEHRZ, RICHARD C.; MARKER, STEVEN C.; KNORR, SUSAN O.; KALIS, JANAL M.; & *BELFOUR, HENRY H., JR.** Specific cell-mediated immune defect in active cytomegalovirus infection of young children and their mothers. *Lancet*, 2(8043):844-847, 1977.

Four young children with active cytomegalovirus (CMV) infection were found to have a cell mediated immune defect specific to CMV by an in vitro lymphocyte proliferation assay. All of the patients had antibodies to CMV and were shedding CMV actively in the urine. Each patient had an intact general cellular immune response with a normal complement of T lymphocytes and normal in vitro response to mitogens and at least 1 antigen. The mothers of these patients were studied and 3 of the 4 were found to have decreased cell-mediated immunity to CMV shortly after delivery. It is suggested that an antigen specific immune defect facilitates transmission of CMV from the mother to the infant and allows persistence of viral replication in the offspring. It is also suggested that restoration of lymphocyte function with an agent as lympocyte transfer factor may be beneficial. (14 refs.)

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1888 **RYDER, ROBERT W.; BUXTON, ALFRED E.; WACHSMUTH, I. KAYE; MASON, EDWARD; & BARRETT, FRED F.** Heat-stable enterotoxigenic *Escherichia coli* and necrotizing enterocolitis: lack of an association. *Journal of Pediatrics*, 91(2):302-303, 1977.

During an outbreak of diarrhea caused by heat-stable enterotoxigenic *Escherichia coli*, 9 of the 205 infants in a special care nursery developed necrotizing enterocolitis. Heat-stable enterotoxigenic *E. coli* was isolated from cultures from 5 of the 9 infants with necrotizing enterocolitis and from 27 of 71 infants without necrotizing enterocolitis. Since cases of necrotizing enterocolitis were not significantly more common in infants colonized or infected with heat-stable enterotoxigenic *E. coli* (16 percent) than in infants without this organism (8 percent), *E. coli* apparently was not the cause of necrotizing enterocolitis. More likely, compromise of the integrity of the bowel mucosa permitted entry of the enterotoxigenic organisms into the systemic circulation from the intestine where they were the predominant colonizing organism. (9 refs.)

Bacterial Diseases Division
Bureau of Epidemiology
Center for Disease Control
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1889 **TOCHEN, MARK L.** Bone lesions in a child with meningococcal meningitis and disseminated intravascular coagulation. *Journal of Pediatrics*, 91(2):342-343, 1977. (Letter)

Prolonged fever and refusal to walk prompted roentgenographic examination of the skeleton in a 2-year-old boy with meningococcal meningitis and disseminated intravascular coagulation (DIC). Lytic lesions of the left radius and of several bones of the hands were observed, with cortical hyperostosis of the left ulna and involvement of multiple spinal segments. Clinical improvement coincident with defervescence and resolution of the bone lesions suggests the lesions might have been responsible for the fever and slow recovery. Since the location of the lesions was not consistent with osteomyelitis after bacteremia and cultures of blood and bone were sterile, DIC may have been a contributing or causative factor in the pathogenesis of the lesions. (5 refs.)

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1890 **PECKHAM, CATHERINE S.; MARSHALL, W. C.; & DUDGEON, J. A.** Rubella vaccination. *British Medical Journal*, 1(6071):1278, 1977. (Letter)

With reference to a previously published letter, it is noted that the mass rubella immunization program that was advocated was designed to produce herd immunity and prevent the acquisition of rubella by susceptible pregnant women. However, it is noted that attempts to produce this immunity have been unconvincing and there is no epidemiological evidence that this has been or can be achieved. Selective immunization of girls age 11-14 years has several advantages: approximately half of the girls will already have acquired a natural immunity and thus will have solid protection for the future; delaying immunization until this age may prevent the need for booster doses when vaccine is given in early childhood since we don't know how long vaccine-induced immunity will last; there is a greater interest in protecting girls against rubella than boys; and selective immunization is less costly. This method, as opposed to the U.S. policy of mass vaccination, is considered proper policy and the medical community should make all efforts to immunize according to these guidelines. (4 refs.)

Department of Microbiology
Institute of Child Health
London, WC1, England

1891 **COULTER, M. D.; & JONES, B. M.** How effective is measles immunization? *British Medical Journal*, 1(6072):1347, 1977. (Letter)

An epidemic of measles is described which occurred after immunization. There were 82 cases reported within a specific practice area. Parents of 8 children claimed that their children had been previously immunized and records exist to confirm this. At least 2 other children were also said to have had measles after immunization but documentation is lacking. It is noted that about 1 out of 7 children previously immunized contracted the disease when exposed. Of further concern is the difficulty in obtaining authoritative information on the efficacy of measles vaccine.

Potton
Sandy, Beds, England

1892 **DESTRO, ROBERT L.; & SHARMA, VIDYA.** An appraisal of vitamin C in adjunct therapy of bacterial and "viral" meningitis. *Clinical Pediatrics*, 16(10):936-939, 1977.

A study which investigated whether high dosage vitamin C therapy by intravenous route might alter the clinical course of bacterial and viral meningitis is described. The initial treatment dosage was 100 mgs/kg over a 30-minute period with subsequent doses of 50 mgs/kg every 8 hours for a total of 9 doses. Results in 42 infants and children indicate that improvement was essentially the same independent of the use of ascorbic acid. There were no specific alterations in blood pH, bicarbonate, chloride, potassium, and urea nitrogen. It is concluded that large concentrations of intravenous ascorbic acid did not produce any adverse effects or any appreciable amelioration of the condition. (10 refs.)

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1893 **KOPELMAN, PETER.** Raised mean cell volume and meningoencephalitis associated with *Mycoplasma pneumoniae* infection. *British Medical Journal*, 1(6065):881-882, 1977.

Mycoplasma pneumoniae should be considered as a causative agent in all cases of acute neurological dysfunction, particularly in young patients. In the case report of a 30-year-old housewife, diagnosis was suspected from a raised mean cell volume resulting from cold agglutination of the patient's cells in the Coulter counter. Tetracycline treatment by nasogastric tube was successfully administered, with the patient gradually recovering over a 2-month period. Antecedent or concurrent pulmonary disease is common but not uniformly present in these types of cases. The nature of the neurological lesion is not clear, but direct invasion of the central nervous system is unlikely. The diagnosis suspected where cold hemagglutinins are detected is confirmed by measuring either serial complement-fixing or growth-inhibiting antibody titres. A definite diagnosis is important because the prognosis for a full recovery is generally good, although antimicrobial treatment is ineffective. (5 refs.)

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1894 **RAWLS, WILLIAM E.** Treatment of herpesvirus infections. *Journal of the American Medical Association*, 235(13):1365-1366, 1976. (Editorial)

Many drugs have been used to treat infections caused by members of the herpesvirus group, and a pattern has emerged in which the results of inadequately controlled experiences of some physicians have been used as a basis for new forms of therapy. Upon careful analysis, these treatment forms have been demonstrated to be ineffective, and initial observations have not been confirmed. Although encouraging results are reported for the use of vidarabine (adenine arabinoside), more controlled studies on its therapeutic effectiveness are needed before its use is recommended to the general medical community. (13 refs.)

McMaster University
Hamilton, Ontario, Canada

1895 **FRIIS, BIRGITTE; & SARDEMANN, HENRIK.** Neonatal hypocalcaemia after intrauterine exposure to anticonvulsant drugs. *Archives of Disease in Childhood*, 52(3):239-241, 1977.

Two cases are reported of prolonged hypocalcemia with tetany in newborn infants, whose epileptic mothers had been treated for several years with high doses of phenytoin and phenobarbitone. Both infants were hypotonic and showed signs of jitteriness and tetany in the first 2 weeks of life, and in both the hypocalcemia was resistant to therapy over a longer period. Phenytoin, phenobarbitone, and other anticonvulsant drugs are known to induce hepatic microsomal enzyme activity, which results in an increased hydroxylation of vitamin D to biologically inactive metabolites. It is therefore presumed that lack of vitamin D during intrauterine life was responsible for defective fetal bone mineralization in the 2 infants, the resultant deficient fetal stores of calcium being unable to sustain neonatal calcium homeostasis. Neonatal hypothyroidism following high circulating levels of maternal parathyroid hormone during intrauterine life may have contributed to the neonatal hypocalemia. (7 refs.)

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1896 **MENSER, MARGARET A.; GREGG, NORMAN; FORREST, JILL M.; & BRANSBY, ROBYN D.** Congenital rubella: clinical and related studies. *Australian Journal of Mental Retardation*, 4(6):1-3, 1977.

In the wake of the very large rubella epidemic of 1974-1975, significantly more infants with congenital rubella have been seen in the last 12 months. Six years have lapsed since the commencement of the rubella vaccination program among 12-14-year-old schoolgirls in Australia, and a follow-up is being conducted to reveal the proportion of vaccinated girls who remain seronegative as well as to ascertain the number of girls who missed being vaccinated. A follow-up also is being attempted of infants born with congenital rubella following the 1975 epidemic, with special emphasis placed on identifying the source of the mother's infection and the reasons why she was not vaccinated prior to pregnancy. A clinical vaccine trial is being conducted at present with the RA27/3 rubella strain.

Children's Medical Research
Foundation
Sydney, Australia

1897 **SMITH, DAVID W.** Teratogenicity of anticonvulsive medications. *American Journal of Diseases of Children*, 131(12):1337-1339, 1977.

At least some medications which may be important in anticonvulsive therapy for many women have been shown to be teratogenic. Trimethadione, of the oxazolidinedione class of drugs, is one of the most potent teratogenic agents yet recognized in man. More than 80 percent of reported conceptuses exposed to the drug in utero have either been spontaneously aborted or malformed at birth. Concern about the teratogenic impact of anticonvulsive medications extends beyond trimethadione to antiseizure agents which are used more commonly during the reproductive age. Diphenylhydantoin and other hydantoins have been shown to cause a particular pattern of malformation, the fetal hydantoin syndrome. Though barbiturates have been considered relatively safe during pregnancy, recent evidence raises concern about the impact of these agents, too, on prenatal development. The succinimides and the acetylurea agents share a chemical core structure with the foregoing agents and should also be studied for potential teratogenic effects. As a general dictum, it would seem wise to strive toward discontinuation of anticonvulsive medications prior to pregnancy if at all possible. (9 refs.)

Dysmorphology Unit
Department of Pediatrics
University of Washington
School of Medicine
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1898 **FELDMAN, GERALD L.; WEAVER, DAVID D.; & LOVRIEN, EVERETT W.** The fetal trimethadione syndrome: report of an additional family and further delineation of this syndrome. *American Journal of Diseases of Children*, 131(12):1389-1392, 1977.

In one family, 7 pregnancies occurring while the mother was receiving trimethadione (Tridione), as well as other anticonvulsants, resulted in 4 children with multiple congenital anomalies and 3 spontaneous abortions. Two subsequent pregnancies after withdrawal of all medications produced 2 normal children. There have now been 53 reported pregnancies in which the fetuses were exposed to trimethadione or paramethadione, 46 (87 percent) of them resulting in fetal loss or a child born with congenital malformations. The most common findings have been malformed ears, cleft palate, cardiac defects, urogenital malformations, and skeletal abnormalities, as well as delayed mental and physical development. These findings constitute a clinical entity termed the fetal trimethadione syndrome. Tracheoesophageal fistulas and other tracheal abnormalities were found in 3 of the 4 siblings in the present family and should be included as part of this syndrome. These defects may play an important role in the mortality seen in the syndrome, as was the case with these 3 siblings. (31 refs.)

Department of Medical Genetics
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1899 **MORENS, DAVID M.; & NOBLE, GARY R.** Reye syndrome and influenza. *Lancet*, 1(8015):807-808, 1977. (Letter)

Although our data support an epidemiological relationship between influenza and Reye's syndrome, environmental factors play a significant role in Reye's syndrome, and, while influenza infections may precipitate or precede the syndrome, the evidence is inconclusive that active influenza is a regular occurrence during the illness. Epidemiological data support at least 3 cofactors--viral, environmental, and constitutional--in incidence of Reye's syndrome. It seems reasonable to propose that Reye's syndrome follows influenza and other viral infections; that while in some cases viral replication may continue, in others multiplication may cease while the Reye's syndrome continues; and that Reye's syndrome may be a result not only of an initial viral insult but also of the interaction of environmental and constitutional factors. (10 refs.)

Viral Diseases Division
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1900 **GEHRZ, R. C.; MARKER, S. C.; & BALFOUR, H. H., JR.** Specific cell-mediated immune defect in congenital cytomegalovirus infection. *Lancet*, 1(8015):811-812, 1977. (Letter)

The in-vitro lymphocyte proliferative response to concentrated, purified cytomegalovirus (CMV) antigen in 2 patients with congenital CMV was studied. Incorporation of tritiated thymidine into new DNA in dividing lymphocytes was used to determine response in mononuclear leukocytes from infected and control donors incubated with CMV. A 3-month-old girl and a 4-year-old boy with congenital CMV were excreting virus when studied and had antibodies to CMV, although no proliferative response was induced by CMV in either Ss. Patients with congenital CMV seem to have a selective defect in recognition of CMV antigen. Such patients are now being treated with dialyzable transfer factor prepared from CMV-responsive lymphocytes, in the hope that this antigen-specific cell-mediated immune defect can be reversed. (1 ref.)

St. Paul Children's Hospital
St. Paul, Minnesota 55102

1901 **CHANG, TE-WEN.** Genital herpes and type I herpesvirus hominis. *Journal of the American Medical Association*, 238(2):155, 1977.

While it was thought for many years that genital herpetic infections were almost always caused by type 2 herpesvirus, the not infrequent association of type 1 herpesvirus (oral type) and genital disease was first described in 1974, and recent experience has demonstrated the predominance of herpesvirus type 1 isolated from the genitalia among young patients. In one study, about a third of patients in the age group of 15 to 24 years had type 1 herpesvirus isolated from the genital area, whereas only 7 percent of those older than 25 had infection with type 1 virus. As the frequency of orogenital contact increases, it is not surprising to see type 1 herpesvirus infection involving the progenital areas. For the same reason, herpetic pharyngitis from orogenital exposure is not infrequently seen; herpetic keratitis from type 2 virus has begun to appear; and type 1 as a cause of neonatal herpes infection is described more often than it was previously. Careful avoidance of direct contact with active lesions is the only sure way to prevent dissemination of genetic herpetic disease. (3 refs.)

Infectious Disease Service
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1902 **BERGER, RICHARD S.; & PAPA, CHRISTOPHER M.** Photodye herpes therapy–Cassandra confirmed? *Journal of the American Medical Association*, 238(2):133-134, 1977.

In view of recent reports of multiple lesions on the penis which were biopsy-proved Bowen's disease following photodye therapy for presumed herpes progenitalis, photodye therapy for herpes simplex should be considered an experimental treatment and a potentially dangerous one. Burdened by long-suffering patients and the ever increasing incidence of recurrent herpes simplex infections, practitioners have sought any reasonable treatment. They were encouraged by early reports of photodye treatment because of its readily available components and because its apparent efficacy could be explained in terms of molecular alterations in viral deoxyribonucleic acid infective units. Tissue culture and animal transplantation

experiments showed that photoinactivated viral particles have increased oncogenic potential, but photodye therapy appeared to remain in widespread use. Since the safety of photodye therapy is now open to serious question, and controlled studies have judged this therapy ineffective, there can be little reason to recommend continued use of the procedure in clinical practice. (12 rers.)

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1903 **HALL, WILLIAM T.; MUNDON, FRANCIS K.; & MADDEN, DAVID L.** Antibody to hepatitis A in mentally retarded inpatients. *Lancet*, 1(8014):758-759, 1977. (Letter)

Sera collected in 1970 from 248 SMR males (chronological age 4 to 68 years) and 137 SMR females (chronological age 5 to 49 years) were examined. Subsequent to the blood sampling, the 10 wards housing these patients were among the most seriously affected by an epidemic of hepatitis A. Antibody to hepatitis A virus (anti-HA) was sought by an immune adherence hemagglutination assay using HA antigen recovered from the stools of a patient with subclinical hepatitis contracted during the epidemic. Of the 385 patients, 160 (42 percent) had anti-HA, a percentage which correlated well with results obtained in a previous study. A significant association was found between the frequency of anti-HA and chronological age. Whereas the frequencies in the whole population and in the older age-groups were similar in both studies, the younger patients in the present study had a significantly lower antibody frequency, probably as a consequence of their more restricted hospital environment. (3 refs.)

Electro-Nucleonics Laboratories, Inc.
Bethesda, Maryland 20014

1904 **KIM, HYUN W.; BRANDT, CARL D.; KAPIKIAN, ALBERT Z.; WYATT, RICHARD G.; ARROBIO, JULITA O.; RODRIGUEZ, WILLIAM J.; CHANOCK, ROBERT M.; & PARROTT, ROBERT H.** Human reovirus-like agent infection: occurrence in adult contacts of pediatric patients with gastroenteritis. *Journal of the American Medical Association*, 238(5):404-407, 1977.

Sixty-four adult family contacts of 61 young patients (chronological age less than 1 month to 12.5 years) who were hospitalized with gastroenteritis were studied for evidence of concurrent infection with the human reovirus-like agent (HRVLA) of infantile diarrhea. The study population of adult contacts included 58 mothers, 5 fathers, and 1 grandmother. Only one of the available stool specimens from the 21 adult contacts was found to be positive for the HRVLA by immune electron microscopy. Serologic evidence of infection with HRVLA was demonstrated in 26 (41 percent) of the 64 contacts. Indirect immunofluorescence was more efficient than the complement fixation technique. The HRVLA infection occurred significantly more often among adult contacts of pediatric patients infected with HRVLA (55 percent) than among contacts of young patients who were not infected with the agent (17 percent). Eighty-eight percent of the HRVLA infections in contacts occurred during the cooler months when such infections were prevalent in their hospitalized children. Only 3 of the 26 infected contacts reported any gastroenteric symptoms. (18 refs.)

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1905 **WYATT, G. P.; & MARCUS, J. C.** Pyogenic meningitis in chronic gastroenteritis and marasmus. *Archives of Disease in Childhood*, 52(2):159-162, 1977.

Pyogenic meningitis was reported in 6 infants who presented with severe illnesses with gastroenteritic symptoms. In 5 of the 6 infants, normal cerebrospinal fluid was recorded earlier in the illness. Clinical presentation was atypical, often lacking signs of meningitis, which developed unexpectedly and unpredictably. It is reasonable to assume that all these cases developed while the infants were hospitalized. Since all patients were severely malnourished, the combined effects of splenic growth retardation and thymolymphatic atrophy, along with defective splenic blood supply caused by dehydration of diarrhea, may have produced a relative asplenia with heightened susceptibility to pneumococcal infections. Lumbar

puncture should be performed in any case of unexplained fever or other change in clinical state. (5 refs.)

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1906 HELMS, P. J. Relapsing *E. coli* K1 antigen meningitis in a newborn. *Archives of Disease in Childhood*, 52(2):152-154, 1977.

A case of relapsing *Escherichia coli* K1 antigen meningitis was reported in a newborn male of 32 weeks gestation who presented with recurrent apnea on the second day of life. The infant relapsed 6 days after a standard course of gentamicin and chloramphenicol and intrathecal gentamicin, but was successfully treated with intraventricular gentamicin and systemic cotrimoxazole. This case illustrates the paucity of signs in early serious neonatal bacterial infection and emphasizes the importance of considering meningitis if any abnormal behavior is noted. The *E. coli* isolated from the cerebrospinal fluid had the characteristics of the K1 antigen in its immunochemical relationship to the capsular polysaccharide of *Neisseria meningitidis* Group B. The persistence of ventriculitis which often accompanies neonatal meningitis and the need for adequate levels of antibacterial therapy in this condition were emphasized. (9 refs.)

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1907 DAS, MAYA; KLEIN, WAYNE; & FEIG, STEPHEN A. Glycolytic metabolism of neonatal mononuclear cells. *Pediatric Research*, 11(10):1068-1072, 1977.

Cord lymphocytes and adult lymphocytes were compared to detect metabolic alterations which might suggest the physiologic basis of impaired cellular immunity in newborn infants. Blood specimens were obtained by venipuncture from 50 normal adults and 23 pregnant woman immediately before delivery. Blood specimens were also obtained from the placental end of the umbilical cord of 60 term newborns and 8 premature infants. Enzyme assays revealed that newborn mononuclear cells have diminished pyruvate kinase (PK) and phosphoglycerate kinase (PGK) activities, which are accentuated in premature infants and accompanied by reduced adenylate kinase (AK). The activity of AK and PKG and mononuclear cell glycolysis are stimulated by phytohemagglutinin (PHA) in both adult and newborn cells. The activity of PK, which may play a critical role in the energy metabolism of immunocytes, is stimulated by PHA only in adult cells. The ATP content of neonatal cells is reduced compared to adult values. Neonatal mononuclear cell PK activity (which correlates with lactate activity) increases to adult levels in the middle of the first year of life, which may indicate a correlation of PK activity with maturation of monocyte function. (28 refs.)

1908 CHUCK, WILLIAM. Herpes encephalitis is successfully treated. *Journal of the American Medical Association*, 238(11):1121, 1126, 1977.

Some results of a collaborative study of the effects of adenine arbinoside on herpes virus encephalitis are discussed. Patients with clinical symptoms of herpes encephalitis (HE) were given adenine arabinoside(ara-A) (15/mg/kg/D) intravenously for 10 days. In patients whose brain biopsy was negative for herpes virus no differences were noted between ara-A treated patients and control patients. However, for patients with biopsy-proven HE the mortality dropped from 70 percent in the control group to 28 percent in those who received ara-A. Early diagnosis and treatment are essential in preventing or lessening neurological sequelae, since ara-A has no effect on brain damage once it has occurred. Unfortunately, the large fluid volume necessary to deliver the ara-A, which is only slightly soluble in water, may cause fluid overload and dangerously increase intracranial pressure, which makes it impractical to treat all patients with encephalitis immediately. Currently the only method for detecting herpesvirus infection requires 48-96 hours for results. New immunoassays for cerebrospinal fluid are being investigated. In the meantime ara-A could be given until biopsy results are available; treatment could be terminated in cases showing negative biopsies after 5 days.

1909 'If and when' of measles vaccination being studied. *Journal of the American Medical Association*, 238(11):1125, 1977.

Measles outbreaks can occur even in cases where patients have previously been immunized. This is particularly true in cases where patients were immunized at 9 months (as was recommended before 1965), an age at which vaccine efficacy is now known to be low because of the interference of residual maternal measles antibodies in the infant. Improper storage and handling of measles vaccines may also limit their effectiveness.

1910 **IANNETTI, P.; BALDUCCI, L.; BUSINCO, L.; & MIDULLA, M.** Herpetic encephalitis with associated cytomegalovirus infection and myoclonus. *Lancet*, 2(8050):1227-1228, 1977. (Letter)

A case possibly involving double viral infection of the brain is described. A 13-month-old girl was hospitalized with diarrhea, vomiting, fever, and generalized tonic-clonic convulsions. She developed hypertonia, opisthotonus, and lethargy but recovered after treatment with antibiotics and anticonvulsants. After 2 years she began to have myoclonic fits and short periods of loss of consciousness accompanied by clonic jerks of the upper limbs. Cytomegalovirus was isolated from cerebrospinal fluid, and herpesvirus hominis antibody (1:8) was found in her serum. Cytomegalovirus could be isolated without detecting antibodies to it, and antibodies to herpesvirus could be detected without the herpes virus itself. Herpetic encephalitis with associated cytomegalovirus infection of brainstem and cerebellum and consequent myoclonic evolution were diagnosed. On the other hand, the immunosuppressive activity of cytomegalovirus may have caused the low antibody response and the depression of cell-mediated immunity. (5 refs.)

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1911 **CHALLIS, R. E.; & SCOPES, J. W.** Late withdrawal symptoms in babies born to methadone addicts. *Lancet*, (2(8050):1230, 1977. (Letter)

Two cases of newborn infants of methadone-addicted mothers showed late withdrawal symptoms, one beginning on the fourth day and the other on the seventh day. Each child was either irritable or hyperactive. One did not gain weight, while the other was actually losing weight despite vigorous feeding responses in both cases. Each child was treated with chlorpromazine (0.5mg/4 hours). Reduction of the dosage on the eleventh day of treatment caused one baby to become restless, tachypneic, and pyrexial, and the other to have a generalized convulsion. It was eventually possible to terminate the chlorpromazine, but these cases indicate the need for close observation of babies born to methadone addicts for at least 7 days. (2 refs.)

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1912 **DAVID, OLIVER J.; & HOFFMAN, STANLEY.** Blood-lead and mental retardation. *Lancet*, 1(8017):906, 1977. (Letter)

Dr. Rigby has asserted that the vast majority of children with blood lead of 25-55μg/dl do not appear to be MR, which seems to argue against our conclusion that mild and borderline MR are commonly associated with these levels. Both statements may be correct if the number of children with blood-lead level of 25-55μg/dl is much greater than the number of children with mild and borderline MR. Dr. Sachs raises the question of lead toxicity as a threshold illness: under the most-resistance hypothesis, some children with low blood-lead should have symptoms that precede outright encephalopathy. This does happen, but toxin quality is also a critical ingredient. The correlation that exists between blood-lead level and type and/or severity of the dysfunction will be mediated by host resistance. With a standard deviation of about ±3.0 for one blood-lead, the difference between means need not be much greater than the standard deviation to be clinically acceptable. (1 ref.)

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1913 **YEH, T. F.; & PILDES, R. S.** Transplacental aminophylline toxicity in a neonate. *Lancet*, 1(8017):910, 1977. (Letter)

A case of possible transplacental aminophylline toxicity in a newborn infant is reported. The mother was treated for asthmatic symptoms with 500mg aminophylline by suppository and 100mg by mouth initially at 1 day before delivery (along with furosemide and nitroglycerine) and thereafter with 100mg aminophylline by mouth every 4 hours until 1 hour preceding delivery. She had taken aminophylline intermittently during pregnancy. A 36-week gestation, 2.2kg infant was healthy at delivery with Apgar scores of 9 and 10 at 1 and 5 minutes, respectively, and a slight tachycardia. Symptoms of irritability, vomiting, and jitteriness were transient from the time of appearance at 6 hours of life through the second day. The absence of perinatal hypoxia, the normal blood chemistry, and the improvement without special treatment indicated aminophylline toxicity. Cord-serum aminophylline concentration was 9.2μg/ml, and serum-aminophylline at 52 hours of age was 5.8μg/ml. Neurological examination at 3 months of age was normal. Infants born to mothers treated with high doses of aminophylline prior to delivery should be observed for similar symptoms. (5 refs.)

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1914 **ROMANO, MARTA C.; GIOIA, INES A.; & BERNASCONI, M. VIRGINIA.** Prednisone effects on postnatal brain development of rats following maternal therapy. *Pediatric Research*, 11(10):42-1045, 1977.

16-β-Metilprednisone (1.25mg/kg/day) was administered to a group of inbred pregnant rats during the last week of pregnancy to study the effects on postnatal brain development. The litters were killed either within 24 hours after birth, at 17 days, or at 45 days of age. In comparing treated litters (those whose mothers received the steroid) to a similar control (untreated), group treated litters had decreased body weights and decreased wet brain weight at 17 days. Dry brain weight was lower in treated groups at 17 and 45 days. While treated newborns and 17-day-old rats showed a decreased content of brain proteins, treated 45-day-old rats showed reduced brain levels of total lipids, cholesterol, and phospholipids. Brain phospholipids were also decreased in the 17-day-old rats. Results indicate that administration of 16-β-metilprednisone to pregnant rats does produce long lasting changes in brain chemical composition. The brain lipid deficiencies observed may interfere with the myelination process and may result in brain functional deficits. (20 refs.)

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1915 **ZERVOUDAKIS, IONNIS A.; & CEDERQVIST, LARS L.** Effect of *Listeria monocytogenes* septicemia during pregnancy on the offspring. *American Journal of Obstetrics and Gynecology*, 129(4):465-467, 1977.

A woman was admitted with chills, dry cough, and fever during the second trimester of pregnancy. Blood cultures confirmed a diagnosis of listeria sepsis, and the patient was treated with penicillin (20×10^6 i.v.) for 9 days. Amniocentesis performed at 37 weeks' gestation showed clear amniotic fluid from which *Listeria monocytogenes* could not be cultured, and at 39 weeks the patient had a normal spontaneous delivery of a normal infant. The survival rate of infants born to mothers treated for *Listeria* sepsis during pregnancy (71 percent), in contrast to that of infants of mothers with *Listeria* sepsis first diagnosed after the birth of affected offspring (29 percent), emphasizes the importance of active treatment of *Listeria* sepsis during pregnancy in the prevention of congenital listeriosis. (2 refs.)

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1916 **JEFFERY, HEATHER; SCOTT, JUNE; CHANDLER, DIANNE; & *DUGDALE, A. E.** Deafness after bacterial meningitis. *Archives of Disease in Childhood*, 52(7):555-559, 1977.

The hearing of 17 children who previously had had bacterial meningitis was compared to that of 17 sib controls. No signs of senorineural deafness were found in either the 17 postmeningitis

children or the sib controls. Sensorineural deafness can occur after meningitis, but apparently only when there are other signs of neurological damage. There was, however, a considerable amount of hearing loss in both patients and controls shown by audiometry and by tympanometry to be due to middle-ear dysfunction. It is likely that much of this hearing loss is temporary and probably due to intercurrent infection affecting the middle ear. The deafness attributed to bacterial meningitis in other studies may well reflect population variability. (14 refs.)

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1917 **HALONEN, PEKKA; MATIKAINEN, MARJA-TERTTU; SALMI, AIMO; VUORIMAA, TERJO; ZIOLA, BARRY R.; *KIESSLING, W. R.; HALL, W. W.; & TER MEULEN, V.** Antibody response to measles virus in subacute sclerosing panencephalitis. *Lancet*, 1(8023):1201-1202, 1977. (Letter)

Halonen et at. reported that of 12 patients with subacute sclerosing panencephalitis (SSPE), only 2 were positive for measles-specific IgM antibodies, but all 12 were highly positive in all serum and cerebrospinal fluid (CSF) specimens for measles-specific IgG antibodies. Kiessling et al. had reported high levels of measles-virus-specific IgM antibodies in the serum and CSF of all 20 SSPE patients. Halonen suggested that the differences between their findings may be methodological. Halonen et al. used a solid-phase radioimmunoassay (RIA) in which purified measles virions were absorbed on polystyrene balls, suggesting a sensitivity 20-1000 times greater than conventional serological techniques. Halonen et al. stressed the methodological importance of the specificity of the ^{125}I-labelled anti-human-μ indicator antibodies, the type of measles antigen used in RIA, and the detection of measles-specific IgG antibodies in CSF of controls. Contrary to Kiessling, Halonen et al. proposed that some but not all SSPE patients have a measles-specific IgM response at some but not all stages of the disease. Kiessling et al. replied that the IgM response in SSPE fluctuates, and the ability to detect this depends on the assay sensitivity and perhaps on the stage of the disease when the test is performed. In discussing Halonen's 3 methodological points, Kiessling suggested that their RIA would appear to be up to 10 times more sensitive than that of Halonen's, thereby accounting for observed differences. (9 refs.)

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1918 **PORTER, K. G.; SINNAMON, D. G.; & GILLIES, R. R.** *Cryptococcus neoformans*-specific oligoclonal immunoglobulins in cerebrospinal fluid in cryptococcal meningitis. *Lancet*, 1(8024):1262, 1977. (Letter)

A case of cryptococcal meningitis with oligoclonal immunoglobulin bands specific for the infecting cryptococcus in the cerebrospinal fluid (CSF) of a 43-year-old, previously healthy woman is reported. The patient responded gradually to treatment with 5-fluorocytosine and emphotericin B. The presence of oligoclonal immunoglobulins in the CSF was suspected because of the duration of the infection prior to treatment. The CSF IgG estimated by electroimmunodiffusion was >20mg/dl. Agarose electrophoresis of concentrated CSF showed 6 discrete bands in the gamma region. Banding studies showed absorption of the patient's CSF with cryptococcal antigen which completely removed the oligoclonal immunoglobulin bands only. A similar absorption with candida antigen did not remove the oligoclonal bands. Cryptococcal antigen did not remove the oligoclonal IgG bands in CSF from a patient with multiple sclerosis. The general principle that immunoglobulin bands in the electrophoretic gamma region reflect hyperimmune levels of specific antibodies of restricted heterogenicity arising with persisting exposure to antigens seems likely to be widely applicable. (4 refs.)

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1919 CHATTERJI, MANJU; & MANKAD, VIPUL. Failure of attenuated viral vaccine in prevention of atypical measles. *Journal of the American Medical Association*, 238(24):2635, 1977.

A case is reported of a 12-year-old girl in whom atypical measles developed in May 1975 despite the fact that she had received live vaccine in 1967, 3 years after receiving killed vaccine. Failure to prevent atypical illness in a recipient of killed measles vaccine by subsequent inoculation of live attenuated vaccine could have been the result of various factors. Some of the reasons may be related to vaccine failure, which is known to occur even in study situations. Among the other possibilities are: (1) the live attenuated virus may have been destroyed by antibodies created by the prior immunization with killed vaccine; (2) the live vaccine was not "live" in this particular instance; or (3) the live vaccine itself contributed to altered reactivity of the patient. The serum hemagglutination inhibition (HI) antibody titers for measles virus were 1:10 and 1:640 on the fourth and eleventh days, respectively. In the absence of data on immunoglobulin types, it it difficult to be certain whether the antibody titer in the serum on the fourth day was a booster response on exposure to natural virus or persistent antibody from prior vaccination. Persons immunized with killed vaccine need to be carefully observed, especially during an outbreak of measles, even if they have received live virus vaccine. (5 refs.)

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1920 *JELLIFFE, E. F. PATRICE; **OVERALL, JAMES C., JR.; HEADINGS, DENNIS L. Breast feeding and incidence of *E. coli* infections in newborn nurseries. *Journal of Pediatrics*, 90(6):1038-1039, 1977. (Letters)

Antibody activity in colostrum and maternal milk has been found to contribute to resistance to infections in general and to *E. coli* in particular in premature and term neonates. Logistical and medical problems such as illness of the infant and difficulty in transporting milk without contamination are responsible for the limited use of breast milk in newborn intensive care units. Although breast feeding has diminished the incidence of respiratory and gastrointestinal infections, it has not been demonstrated that breast feeding or colostrum will prevent serious systemic gram-negative infections in sick premature infants. (7 refs.)

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1921 GRAY, BARRY M. Meningitis due to *Haemophilus influenzae* type f. *Journal of Pediatrics*, 90(6):1031, 1977. (Letter)

A 10-month-old girl was hospitalized with clinical and laboratory features similar to those typical of *Haemophilus influenzae* type b. Isolates from cerebrospinal fluid (CSF), one of 2 blood cultures, and the left middle ear aspirate revealed that the infecting organism was in fact *H. influenzae* type f. Capsular typing was done by slide agglutination and Quellung reaction using Hyland antisera. All isolates were susceptible to ampicillin and to chloramphenicol by the disc method. The CSF 48 hours after termination of a 10-day course of ampicillin was normal. (9 refs.)

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1922 MOLLICA, FLORINDO; MUSUMECI, SALVATORE; & FISCHER, ALBERTO. Neonatal hepatitis in 5 children of a hepatitis B surface antigen carrier woman. *Journal of Pediatrics*, 90(6):949-951, 1977.

Neonatal hepatitis was seen in 5 of 6 children born to an asymptomatic carrier of hepatitis B surface antigen (HBSAg) between 1951 and 1973. Four of the children with clinical signs of neonatal hepatitis died between 38 and 75 days of age. Upon admission with clinical hepatitis and findings of HBS Ag in serum at 3 months of age, the last-born child was treated with infusions of hepatitis B immune plasma. At 3.5 years of age,

the child is clinically well. The only child of this carrier without neonatal hepatitis is believed to have escaped disease by developing persistent antigenemia. Findings in this family indicate that an asymptomatic HBsAg carrier mother may transmit the antigen, and consequently the disease, to successive children for as long as 22 years. (10 refs.)

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1923 **GERHARDT, TILO; BANCALARI, EDUARDO; COHEN, HARRY; & FERNANDEZ ROCHA, LUIS.** Use of naloxone to reverse narcotic respiratory depression in the newborn infant. *Journal of Pediatrics*, 90(6):1009-1012, 1977.

The effectiveness of naloxone in reversing neonatal respiratory depression was evaluated in 20 infants whose mothers had received meperidine intravenously within 3 hours of delivery. Measures of respiratory function were carried out within 30 minutes of birth and repeated following administration of either placebo or 0.01mg/kg intramuscular naloxone. Minute ventilation and end tidal carbon dioxide (CO_2) were within normal range prior to medication in both groups, while the slope of the CO_2 response curve was decreased, indicating mild to moderate respiratory depression. Administration of placebo in 8 infants did not significantly alter their respiratory response. Following administration of naloxone in 12 infants, minute ventilation increased significantly and the slope of the CO_2 response curve doubled. Naloxone effectively reverses narcotic depression of the respiratory center in the neonate. This effect was more marked in the more severely depressed infants. (7 refs.)

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1924 **COLON, A. R.; GELFAND, M. C.; KNEPSHIELD, J. H.; PAPADOPOULOU, Z.; SANDLER, P.; & SCHREINER, G. E.** Successful management of hepatic coma by hemocarboperfusion. *Journal of Pediatrics*, 90(6):1015-1016, 1977.

Several weeks after surgical drainage of a right frontal cerebral abscess under halothane anesthesia, a 13-year-old black boy developed halothane hepatitis, characterized by persistent fever, eosinophilia, jaundice, confusion, abdominal tenderness, vomiting, and lethargy. Despite supportive care, the patient lapsed into stage IV hepatic coma. After exchange transfusion and hemodialysis were each performed twice without change in clinical status, hemocarboperfusion was employed twice on consecutive days. The patient went from stage IV to stage III coma after the first perfusion and awoke following the second. Clinical improvement was concomitant with decreases in levels of blood ammonia (from 146 to 97μg/dl), serum biiirubin (19.2 to 9.3mg/dl conjugated and 25.2 to 19.0/dl total), and amino acids. (9 refs.)

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1925 ***SWICK, H. M.; & **STEELE, RUSSELL W.** Host inhibitory or blocking factor in subacute sclerosing panencephalitis. *Journal of Pediatrics*, 89(3):518-519, 1976. (Letters)

Investigations by Swick revealed a heat stable blocking factor in the plasma of 8 children with subacute sclerosing panencephalitis (SSPE) that interfered with lymphocyte reactivity to phytohemagglutinin. The amount of blocking factor increased with increasing activity or duration of disease. Preliminary data suggest that the blocking factor is an antigen-antibody complex involving theta antigen that contributes to the pathogenesis of SSPE by preventing an effective host response to the SSPE virus. However, Steele has not been able to demonstrate any correlation between blocking factor and the clinical staging of SSPE. Using methods essentially identical to those used by Swick to study the effect of SSPE serum and cerebrospinal fluid on lymphocyte blastogenic responses to phytohemagglutinin, Steele found no blocking activity. (6 refs.)

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1926 LANDAY, STEPHEN E. Varicella hepatitis and Reye's syndrome: an interrelationship? *Pediatrics*, 60(5):746-748, 1977.

Three cases of chickenpox involving vomiting are reported. Patient 1 was diagnosed as having varicella hepatitis and dehydration and recovered on a regimen of intravenous fluids; patient 2 was hyperammonemic and recovered with intravenous fluids; patient 3 was also hyperammonemic, but received Phenergan suppositories (25μg every 6 hours) for vomiting and died approximately 10 days later. Autopsy diagnosis on patient 3 showed systemic varicella infection, cerebral edema, and severe fatty change of the liver, the latter 2 findings being compatible with Reye's syndrome. The possibilities that each child may have had varicella hepatitis, that the hyperammonemia of patients 2 and 3 might have been caused by an inborn metabolic error, and that the antiemetic administered by patient 3 may have potentiated an inborn metabolic error are discussed. If vomiting developing during the course of varicella marks the onset of liver disease, patients with elevated transaminase levels should be observed for developments that might indicate presence of early Reye's syndrome. (6 refs.)

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1927 FRIED, DANIEL; GOTLIEB, ABRAHAM; & ROITMAN, ABRAHAM. Infectious hepatitis with excessive hyperbilirubinemia and a hemolytic crisis in an 8-year-old boy: his G6PD deficiency was an aggravating factor. *Clinical Pediatrics*, 16(5):482-483, 1977.

An 8-year-old Jewish boy of mixed Moroccan and Iraqi parentage was diagnosed as having severe infectious hepatitis accompanied by acute hemolysis which was apparently related to glucose-6-phosphate dehydrogenase deficiency. The bilirubin rose to unusually high levels—71mg percent. The hemolytic process probably enhanced the production of bilirubin at a stage of deranged clearance and disturbed excretion by the liver. The rise of blood urea in the patient apparently reflected impairment of renal function by the hemoglobinuria. The boy might have recovered with conservative treatment only, but because of the potential danger of bilirubin encephalopathy (indirect bilirubin 32.5mg percent) and more renal damage from ongoing hemolysis, an exchange transfusion was performed. The patient made a rapid recovery and was discharged after 11 days. Six months following his illness he was symptomless and had normal liver function tests, hemoglobin and reticulocyte counts. (11 refs.)

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1928 BRUHN, FREDERIC W.; & YEAGER, ANNE S. Respiratory syncytial virus in early infancy: circulating antibody and the severity of infection. *American Journal of Diseases of Children*, 131(2):145-148, 1977.

Degree of illness and levels of circulating antibody were evaluated in 41 children less than 6 months of age from whom respiratory syncytial virus was isolated. Eleven infants were mildly ill, 17 were moderately ill, and 13 were seriously ill. No correlation was seen between the severity of illness and titer of complement fixation antibody in the cord sera, acute sera, or convalescent sera. The ability of the infants to respond with a fourfold rise in titer after infection appeared to be related to the amount of passively transferred antibody to respiratory syncytial virus that remained. In infants 8 weeks of age or younger, significantly lower titers of complement fixation antibody to respiratory syncytial virus were present in infants who did respond with fourfold rises as compared with those who did not. The infants who responded with an increase in immunoglobulin (IG) M level of 15mg/100 ml or more had higher total IgM levels in their acute sera than those who did not. (17 refs.)

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1929 HANSHAW, JAMES B. Prevention of cytomegalovirus disease following renal transplantation. *American Journal of Diseases of Children*, 131(8):841-842, 1977. (Letter)

Recent experimental research is described in which cytomegalovirus (CMV) disease following renal transplantation did not occur during a 3-month period following surgery in 24 seronegative patients who received a kidney from a seronegative donor. However, of 16 CMV seronegative patients receiving kidneys from a seropositive donor, 14 had fever, 10 had elevated levels of hepatic enzymes, 5 had pneumonia, and 4 required nephrectomy for allograft rejection. The occurrence of primary infection, which can be more accurately determined by the fluorescent antibody method than by the widely used complement fixation tests, presents a much higher risk of morbidity. Graft rejection episodes occurred in 4 of 16 patients in whom primary CMV infections developed after transplantation. None of 24 patients who were antibody negative before and after surgery required nephrectomy for graft rejection. This finding raises the possibility that virus infection, especially primary infection, contributes to the graft rejection process. (10 refs.)

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1930 **LAXER, RONALD M.; & MARKS, MELVIN I.** Pneumococcal meningitis in children. *American Journal of Diseases of Children*, 131(8):850-853, 1977.

The clinical and laboratory features of 79 children with 83 episodes of pneumococcal meningitis over a 26-year period (1948-1973) are reviewed. Ages varied from 5 weeks to 13 years, with a median age of 11 months. Fifty-nine of the cases occurred in the first year of life; 6 of the 9 deaths occurred after the first year of life. Eight of the 9 deaths occurred from 1948 to 1962, resulting in a drop in the mortality rate from 19 percent in the first 15 years to 3 percent in the subsequent 11 years. The onset of illness was often severe, with convulsions occurring in 31 percent of the patients. The association of pneumonia with meningitis, the presence of hypoglycorrhachia, and an increased cerebrospinal fluid protein concentration were associated with a poor prognosis; bacteremia and convulsions were also more common in the fatal cases. Neurologic sequelae, including recurrent meningitis, deafness, hydrocephalus, convulsions, and MR, were present in 56 percent of the patients observed. Findings from EEGs did not correlate well with the clinical picture during the acute or convalescent stage of the illness. Despite the progress made against the disease, pneumococcal meningitis in children is still often associated with serious outcome. (16 refs.)

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1931 **HASLAM, ROBERT H. A.; ALLEN, JAMES R.; DORSEN, MARILYN M.; KANOFSKY, DORRIE L.; MELLITS, E. DAVID; & NORRIS, DOUGLAS A.** The sequelae of group B β-hemolytic streptococcal meningitis in early infancy. *American Journal of Diseases of Children*, 131(8):845-849, 1977.

The frequency and severity of long-term complications from group B β-hemolytic streptococcal meningitis are documented for 18 consecutive cases, compared with 18 control subjects. There were 3 deaths in the study group, resulting in a mortality rate of 17 percent. Among the 15 remaining children, 2 children had extensive neurological and psychological impairment. There were no major differences between the survivors and controls in tests of hearing and language function, social skills, and psychological testing. There was a greater number of minor neurological signs among the study group. Also, the majority of patients have yet to advance to the third or fourth grade, when learning disabilities usually become manifest. However, the outlook for survivors of group B β-hemolytic streptococcal neonatal meningitis is much better than that for gram-negative meningitis in infants of comparable age. (31 refs.)

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1932 **HEADINGS, DENNIS L.; & GLASGOW, LOWELL A.** Occlusion of the internal carotid artery complicating haemophilus influenzae meningitis. *American Journal of Diseases of Children*, 131(8):854-856, 1977.

The etiology of occlusion of the internal carotid artery complicating *Haemophilus influenzae* meningitis, its role in the acute seizures of meningitis, and its chronic neurologic residua are described from a single case of an 18-month-old male infant to illustrate and review the occurrence of this complication. The striking features of the child's course were right-sided seizures, the persistence of a right hemiparesis, and a positive cerebrospinal fluid culture on the sixth day of adequate therapy. Of the vascular processes resulting in focal seizures, generalized arteritis and venous or sinus thrombosis are implicated in this case. Involvement of the supraclinoid portion of the internal carotid artery in this case, as well as in most cases of *H. influenzae*, should not be surprising in view of its location in an area where flow is more turbulent, slower, and where the inflammatory response may be greater. Although thrombus formation is possible, circumstantial evidence implicates spasm secondary to arteritis as the major factor in the occlusions seen with *H. influenzae* meningitis. The residual effects of arterial occlusion are severe. The anoxia, infarction, and necrosis that result must certainly contribute to the long-term neurological sequelae of these patients. (12 refs.)

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1933 **YOUNG, RICHARD S. K.; GRZYB, STANLEY E.; & CRISMON, LYNN.** Recurrent cerebellar dysfunction as related to chronic gasoline sniffing in an adolescent girl. *Clinical Pediatrics*, 16(8):706-708, 1977.

A case of lead intoxication due to gasoline sniffing is reported in a 14-year-old Navajo girl whose presenting symptom was cerebellar dysfunction, notably chorea and ataxia, with few psychological symptoms. The recognition of lead intoxication due to gasoline sniffing may be difficult because of the different signs and symptoms caused by the 2 toxic agents. The diagnosis of organic lead poisoning was established in this adolescent by the history of frequent exposure to organic lead in the lead-containing gasoline, the repeatedly elevated blood lead levels, and the basophilic stippling seen in the erythrocytes. The patient responded to chelation therapy as measured both clinically and by laboratory tests. The dangerous practice of gasoline sniffing with its attendant hazard of lead intoxication is said to be not uncommon among Indian children on reservations. (13 refs.)

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1934 **LEPOW, MARTHA L.; GOLDSCHNEIDER, IRVING; GOLD, RONALD; RANDOLPH, MARTIN; & GOTSCHLICH, EMIL C.** Persistence of antibody following immunization of children with groups A and C meningococcal polysaccharide vaccines. *Pediatrics*, 60(5):673-680, 1977.

Persistence of antibody following immunization with meningococcal polysaccharides was studied in 2 groups of children: Cohort 1 (20 children, 2-11 years of age) received 2 doses of A vaccine 3 years apart; Cohort 2 (1,345 children, 6-8 years of age) received A or C vaccine initially and the heterologous vaccine a year later. Venous blood samples were obtained from all children prior to, one month after, and one year after immunization and annually from children in cohort 1; pharyngeal cultures were also obtained from each child. No significant local or systemic adverse reactions occurred in children of any age. One month after primary and booster immunization in cohort 1, the geometric mean anti-A concentration was 8.77 and 13.08μg/ml, with a 32 percent decrease after one year. Geometric means of anti-C and anti-A were 9.12 and 9.35μg/ml, respectively, one year after immunization of cohort 2. The group C vaccine does not appear to be suitable for control of endemic disease, although it is useful for epidemic disease. Group A meningococcal vaccine was demonstrated to be highly effective in protecting infants and children from epidemic meningococcal disease of the homologous serogroup. (24 refs.)

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1935 **CHAVES-CARBALLO, ENRIQUE; EFTHIMIADIS, BYRON K.; & STOCKWELL, HENRY P.** Toxoplasmosis after splenectomy in sickle cell disease: report of two cases with recurrence in one child two years following antitoxoplasmic therapy. *Clinical Pediatrics*, 15(3):270-272, 1976.

Toxoplasmosis is described in 2 children with sickle cell disease who were splenectomized at an early stage. Initially appearing as lymphadenopathy in both cases, the toxoplasmosis spontaneously regressed in 1 case and subsided following treatment with pyrimethamine and sulfadiazine in the other case. The isolation of *T. gondii* from the enlarged lymph nodes of both children may mean that splenectomized patients with sickle cell disease may be at an enhanced risk of acquiring toxoplasmosis. Splenectomy at an early age raises several questions as to what roles, if any, the absence of the spleen, the primary underlying hematological disorder, and the frequent hospitalizations requiring blood transfusions may have had in their acquiring toxoplasmosis. The possibility of transmitting toxoplasmosis via blood transfusion has been supported by serologic data from patients who have received leukocyte transfusions. Since toxoplasmosis is prevalent in Central America and Panama, the association of sickle cell disease, splenectomy, and toxoplasmosis may be coincidental. (12 refs.)

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1936 **COREY, LAWRENCE; RUBIN, ROBERT J.; & HATTWICK, MICHAEL A. W.** Reye's syndrome: clinical progression and evaluation of therapy. *Pediatrics*, 60(5):708-714, 1977.

The clinical course and laboratory findings for a group of 369 patients with Reye's syndrome after they were classified according to 5 clinical stages of illness are discussed, and their therapeutic regimens evaluated. No significant statistical differences were found between stage of coma on admission and demographics, medications, type or length of antecedent illness, or duration of vomiting before admission. Deepening of coma during hospitalization was associated with increasing mortality and residual neurologic dysfunction, and blood ammonia levels greater than 300μg/100ml were significantly related to fatality. Of the treatment modalities used, supportive care (with or without hypertonic glucose, insulin, osmotic diuretics, antibiotics, cleansing enemas, corticosteroids, and such intensive care as tracheal intubation and arterial inoculation) produced better survival rates (65 percent) than supportive care plus exchange transfusion (54 percent), peritoneal dialysis (45 percent), or both (50 percent). Two epidemiologic patterns of Reye's syndrome are described: cases that are clustered temporally and geographically occur in older children (median age 11) and are usually associated with influenza B, and cases that occur sporadically throughout the year occur in younger children (median age 6) and are associated with numerous other viral agents. (19 refs.)

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1937 **COREY, LAWRENCE; RUBIN, ROBERT J.; BREGMAN, DENNIS; & GREGG, MICHAEL B.** Diagnostic criteria for influenza B-associated Reye's syndrome: clinical vs. pathologic criteria. *Pediatrics*, 60(5):702-708, 1977.

Laboratory abnormalities in 379 cases of Reye's syndrome reported to the Center for Disease Control between December 15, 1973, and June 30, 1974, are summarized. Reye's syndrome was defined as the acute onset of a noninflammatory encephalopathy demonstrated by either the presence of less than 3 WBCs per cubic millimeter in the CSF or by histologic sections of brain demonstrating cerebral edema without meningeal or perivascular inflammation combined with fatty metamorphosis of the liver, SGOT level more than 3 times normal and blood ammonia level greater than 1.5 times normal, or lack of explanation for neurologic or hepatic abnormalities. Reye's syndrome was confirmed in 40 percent (147) patients by autopsy (104) or biopsy (43), and in 60 percent (221) by laboratory and clinical parameters. There was no significant difference between the demographic, epidemiologic, and laboratory characteristics, hospital course, and outcome of patients diagnosed by laboratory and clinical parameters and patients pathologically diagnosed with fatty metamorphosis of the liver. The small number of cases in this series requires

further correlation between the stage of coma on admission, the progression of coma during hospitalization, and the effect of therapy before the usefulness of CPK abnormalities as a prognostic parameter of patient outcome is known. (22 refs.)

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1938 **THADEPALLI, HARAGOPAL; RAMBHATLA, KAMALAKAR; ARCE, JUAN; & DAVIDSON, EZRA C.** Gonococcal sepsis secondary to fetal monitoring. *American Journal of Obstetrics and Gynecology*, 126(4):510-512, 1976.

A case is reported of gonococcal amnionitis followed by neonatal sepsis. The patient was a 14-year-old primapara who during her first trimester had a positive throat culture for *Neisseria gonorrhoeae*. During labor the patient was monitored with an intrauterine catheter and fetal scalp electrode. The amniotic fluid on delivery was considered turbid and cultured positive for *N. gonorrhoeae*. Cervix and endometrium also were cultured positive for this organism 3 days post-partum. The child remained asymptomatic for 3 days but became febrile on the 4th day. Blood cultures were positive for the gonococcus. It is concluded that either premature rupture of membranes or subsequent insertion of the catheter or fetal scalp electrode were responsible for amnionitis. Transmission of the infection to the infant could have been due either to the scalp electrode or fetal ingestion of amniotic fluid. (2 refs.)

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1939 **GOMEZ-BARRETO, JESUS; & *NAHMIAS, ANDRE J.** Hypopyon and orbital cellulitis associated with *Haemophilus influenzae* type B meningitis: diagnostic and therapeutic implications. *American Journal of Diseases of Children*, 131(2):215-217, 1977.

Three children aged 8 months to 2 years were observed with unusual manifestations associated with *Haemophilus* (*H*) *influenzae* septicemia and meningitis. The hypopyon in the first case, diagnosed on the basis of inflammatory changes in the inferior aspect of the anterior chamber of the eye, developed in association with *H. influenzae* meningitis and septic arthritis of several joints. After the second child was diagnosed as having orbital cellulitis in conjunction with *H. influenzae* meningitis, a lumbar tap was performed in another child with orbital cellulitis despite the absence of meningeal signs. Parallel with previous reports, these patients were below 3 years of age. In addition, as with most other cases, the *H. influenzae* etiology was suspected when the cellulitis was noted to have a purple-blue color. The strains in all three patients were sensitive to both ampicillin sodium and chloramphenicol, and initial therapy included chloramphenicol. (12 refs.)

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1940 **PELTOLA, HEIKKI; KAYHTY, HELENA; SIVONEN, AULIKKI; & MAKELA, P. HELENA.** *Haemophilus influenzae* type b capsular polysaccharide vaccine in children: a double-blind field study of 100,000 vaccinees 3 months to 5 years of age in Finland. *Pediatrics*, 60(5):730-737, 1977.

In a trial connected with a Group A meningococcal epidemic in Finland, *Haemophilus influenzae* type b capsular polysaccharide vaccine was given to 48,977 children aged 3 months to 5 years; 49,295 control children with similar age and sex distributions were given group A meningococcal vaccine. Antibodies were measured by radioimmunoassay, which showed a clear-cut inverse correlation between mean serum antibody level and incidence of bacteremic *H. influenzae*. The protection and serum antibody response were strongly age-dependent; adverse reactions were mild. No cases of *H. influenzae* type b were seen in the first year after vaccination in the *H. influenzae*-vaccinated group over 18 months of age, while 11 cases were reported in the A meningococcal-vaccinated group. Two cases were reported in the *H. influenzae*-vaccinated group in the second year after vaccination, and 5 in the meningococcal vaccine group. Neither vaccine was

protective in children less than 18 months old, even when a booster was administered. The incidence of *H. influenzae* type b disease was lower among children not vaccinated than among those vaccinated with group A meningococcal vaccine. A cost-benefit analysis of the polysaccharide vaccine is offered. (41 refs.)

1941 DRURY, K.A.D.; SPALDING, E.; DONALDSON, D.; & RUTHERFORD, D. Floppy-infant syndrome: is oxazepam the answer? *Lancet*, 2(8048):1126-1127, 1977. (Letter)

Oxazepam in doses up to 75mg/day is a safe and effective means of treating moderate pre-eclampsia. In 30 pregnancies managed with oxazepam, no cases of the floppy-infant syndrome have been observed. Patients tolerated the drug well, and urinary estrogen concentrations during the medication period increased satisfactorily. The use of oxazepam in pre-eclampsia is limited, however, since no parenteral formulation is available. (8 refs.)

Redhill General Hospital
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1942 Weighing-up environmental mutagens. *Lancet*, 2(8033):340-341, 1977. (Editorial)

A number of techniques have been developed to screen for possible mutagenic, carcinogenic, or teratogenic environmental contaminants. One widely used test for mutagenicity is based on quantitative analysis of reversion in mutated strains of bacteria. Analysis of chromosome damage permits assessment of the cumulative effects of exposure to a given agent, but the scoring of visible gaps, breaks, and rearrangements in lymphocyte preparations is slow and relatively insensitive. The sister-chromatid exchange assay is more sensitive but of limited clinical value. A method of assessing chromosome damage by isolating micronuclei in young red cells within the bone marrow is sensitive and easy to score but expensive. No one technique is entirely satisfactory, and the capacity of the organism to repair environmentally induced genetic damage has not been fully assessed. (17 refs.)

1943 COX, DAVID R.; MARTIN, LILLIAN; & HALL, BRYAN D. Asplenia syndrome after fetal exposure to warfarin. *Lancet*, 2(8048):1134, 1977. (Letter)

An infant who was exposed to warfarin during the first 6 weeks of gestation was cyanotic at birth, with short, broad distal phalanges and hypoplastic nails. Cardiac catheterization revealed complex congenital heart disease, including a single ventricle, left transposition of a single great artery, pulmonary atresia, patent ductus arteriosus, and partial anomalous pulmonary venous return. Necrotizing enterocolitis and sepsis developed and the infant died several days after birth. Necropsy revealed asplenia and a midline liver with 2 accessory lobes. The celiac vessels were atretic, with a poorly developed mesentery and a partial failure of gut rotation. With the exception of the hand abnormalities, these malformations are consistent with the asplenia syndrome, which has not been previously associated with fetal warfarin exposure. (11 refs.)

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1944 BALFOUR, HENRY H., JR.; & AMREN, DON P. Rubella vaccine (HPV-7 DE_5 strain) fails to sustain antibody titers. *Lancet*, 2(8048):1130-1131, 1977. (Letter)

Forty of 119 children vaccinated for rubella with HPV-77 DE_5 showed no detectable rubella immunity and had hemagglutination-inhibiting (HI) titers less than 8 when tested an average of 5 years after vaccination. Forty-six percent of children vaccinated at less than 15 months of age had rubella HI titers less than 8, and 22 percent of children vaccinated at 15 months or older were seronegative. As with measles vaccine, the rubella vaccine failure rate was significantly higher in children vaccinated when less than 15 months of age.

Virology Section
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1945 **CAROFF, LEENA; & *SEPPALA, MARKKU.** Toxemia of pregnancy: assessment of fetal distress by urinary estriol and circulating human placental lactogen and alpha-fetoprotein levels. *American Journal of Obstetrics and Gynecology*, 126(8):1027-1033, 1976.

The effectiveness of maternal human placental lactogen (HPL, placental origin), alpha fetoprotein (AFP, mainly fetal origin), and urinary estriol excretion (E_3, fetoplacental origin), alone and in combination, for the detection of fetal distress was evaluated in a prospective study of 224 singleton pregnancies complicated by toxemia. Fetal distress was diagnosed in 65 cases (29 percent), and the perinatal mortality rate was 6 percent. Abnormally low E_3 excretion was the most effective marker in the series (63 percent detection rate), but it also gave the highest frequency of false positives (19 percent). Low serum levels of HPL detected 27 percent, and the elevated maternal serum AFP, 10 percent of distressed fetuses. The frequencies of false pathologic levels for HPL and AFP were 0 and 1 percent, respectively, of cases with a normal fetal outcome. Abnormal levels of HPL and AFP provided supportive evidence for fetal distress by pointing out those cases in which E_3 reading was not a false positive. The efficacy of each test increased with the severity of maternal disease. (33 refs.)

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1946 **YOELI, MEIR; *SCHEINESSON, GEORGE P.; & HARGREAVES, BRUCE J.** Infectious diseases in etiology. In: Wortis, J., ed. *Mental Retardation and Developmental Disabilities: An Annual Review* (Annual Series, Volume 9). New York, New York: Brunner/Mazel, 1977, p. 73-105.

Estimates of the relative importance of various infections as causes of MR have been changing. With the immunological and follow-up studies of Alford, Severe, Hanshaw, Krugman, and others showing that many children who appear normal at birth later manifest marked mental impairment, the gross underestimate of the relative importance of intrauterine infections is now being recognized. Neonatal central nervous system infections are often undiagnosed and are of far greater importance as a cause of mental impairment than has been assumed in the past. Intestinal disorders with superimposed infections leading to marked diarrhea in very young children also seem to play a much greater role in brain damage than has previously been thought. The introduction of rubella vaccine has prevented intrauterine damage to the fetus, the introduction of measles vaccine has led to the diminution of measles encephalitis and its sequelae, and the aggressive use of antibiotics has prevented bacterial meningoencephalitis. In large institutions for MRs, the importance of avoiding further damage to the already injured brain, especially through the control of diarrhea produced by *Shigella* and intestinal parasites, cannot be overemphasized. (136 refs.)

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1947 **WEBB, H. E.; KELLY, R. E.; & ADAMS, D. H.** Intravenous and intrathecal adenine arabinoside phosphate in a child with subacute sclerosing panencephalitis. *Lancet*, 2(8045):978, 1977. (Letter)

The use of adenine arabinoside in cases of virus encephalitis and subacute sclerosing panencephalitis (SSPE) is currently being investigated, including ways of attaining effective drug concentrations in the CNS. A 7-year-old girl who was dying of SSPE was given 5'-phosphate derivative of 9-beta-D-arabinofuranosyl adenine (Ara-A-5'-P) intrathecally and intravenously. The patient (weighing 18.5kg) was administered 9.5ml (320mg) intravenously and 1.5ml (56mg) intrathecally each day. The child had a fever and vomiting, easily controlled by drugs and subsiding within 24 hours. She was given 10ml for 9 more days, with only one other instance of fever. No hematological or biochemical changes were noted. By the end of treatment and for the following 2 months there was no objective improvement, and serum and CSF antibody titers were the same. However, the patient was able to recognize her father, which she could not do before therapy. The case demonstrates that Ara-A-5'-P can be given in adequate doses intravenously and intrathecally without significant adverse effect. (2 refs.)

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1948 FENTON, T. R.; MARSHALL, P. C.; CAVANAGH, N.; WILSON, J.; & MARSHALL, W. C. Herpes simplex infection presenting as brainstem encephalitis. *Lancet*, 2(8045):977, 1977. (Letter)

A 4-year-old boy with herpes simplex infection presented with symptoms of brainstem encephalitis. The child complained of pain in his teeth, and had difficulty swallowing and talking. He was febrile, lethargic, dehydrated, hypotonic, and confused. He also had myoclonic twitching. Computerized tomography suggested swelling of the brainstem. On the sixth day adenine arabinoside (20mg/kg/day, i.v.) was given for 5 days. Cerebrospinal fluid tests showed a sterile fluid with a raised protein concentration (0.4g/l). The leukocyte count had risen to 17,000/dl. The child survived but was uncommunicative at the time of discharge and had severe spastic quadriparesis. Adenine arabinoside was probably given too late to be of benefit in this case but should be considered at an early stage in all cases of encephalitis which might be caused by herpes simplex infection.

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1949 VAPAATALO, HEIKKI; MYLLYLA, VILHO; HEIKKINEN, ESA; & HOKKANEN, EERO. Cyclic AMP in CSF of patients with neurologic disease. *New England Journal of Medicine*, 296(12):691, 1977. (Letter)

The levels of cyclic adenosine monophosphate (AMP) correlate well with abnormal processes in the central nervous system, and cyclic AMP is a more sensitive indicator of central nervous system disorders than the enzyme activities usually measured, especially when the progress of inflammatory, infective, or destructive processes is followed. The level of cyclic AMP has been found to be elevated for 3 days after an epileptic attack, in cerebral infarction of the carotid territory (but not in that of the vertebrobasilar territory), in intracerebral and subarachnoidal hemorrhages, in acute contusion or concussion, and in encephalitis and meningitis in children. Lowered values of cyclic AMP were found in old cerebral contusion, cerebral atrophy, and "old" epilepsy, possibly as a drug effect. Phosphodiesterase activity is very low or undetectable in cerebrospinal fluid (CSF). The measurement of CSF cyclic guanosine monophosphate and cyclic AMP in 35 randomized patients with various neurologic diseases yielded no statistically significant changes among the various diseases, possibly owing to the small number of subjects studied. (8 refs.)

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1950 Meningococcal polysaccharide vaccines. Recommendations of the Public Health Service Advisory Committee on Immunization Practices. *Clinical Pediatrics*, 16(9):764-765, 1977. (Editorial)

Routine vaccination of United States civilians with either monovalent A, monovalent C, or bivalent A-C meningococcal polysaccharide vaccine is not recommended because of insufficient data on their benefits. Vaccination may be beneficial for travelers to countries recognized to have epidemic meningococcal disease. Vaccination should be considered an adjunct to antibiotic chemoprophylaxis for household contacts of meningococcal disease cases. Serogroup-specific monovalent vaccine should be used to control an outbreak caused by *Neisseria meningitidis* serogroup A or C. In an epidemic of meningococcal disease due to serogroups A or C, persons expected or known to be at highest risk of disease by virtue of age, socioeconomic status, or residence area should receive priority for vaccination. If there is ample vaccine, all residents in an epidemic area should be vaccinated. Vaccination is contraindicated for pregnant women.

1951 STEEN, J.S.M.; & STAINTON-ELLIS, D. M. Rifampicin in pregnancy. *Lancet*, 2(8038):604-605, 1977. (Letter)

In pregnant rats given large doses (150mg/kg) of rifampicin daily from day 1 to day 12, there was an increased incidence of malformed offspring. Spina bifida and anencephaly were the most common major defects, the former occurring in 90

percent of the cases. A dose-dependent increase in the number of nonossified skeletal elements of the forepaws and hindpaws as well as nonossified vertebrae and sternebrae was also noted. No teratogenic effects were noted in rabbits given large doses (200mg) of rifampicin, but pregnant mice treated with rifampicin showed a 19 percent incidence of offspring with malformations of mesodermal organ development. A study of 229 rifampicin-exposed pregnancies revealed 22 abortions, 179 morphologically normal infants, 9 infants with malformations, 10 normal infants with hemorrhagic tendencies, 4 morphologically normal infants who died after birth, and 5 intrauterine deaths. The potential benefit of rifampicin should be weighed against its possible teratogenic effects. (2 refs.)

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1952 **HARAM, KJELL.** "Floppy infant syndrome" and maternal diazepam. *Lancet*, 2(8038):612-613, 1977. (Letter)

In contrast to Dr. Gillberg's observation of serious effects of low-dose administration of diazepam during pregnancy, a woman who took at least 30mg/day diazepam during pregnancy gave birth to apparently normal offspring. During the first pregnancy, the woman also took 300mg chlorprothixine daily and usually took 5mg nitrazepam each night. The infant had a cyanotic episode shortly after birth, but no serious signs developed, and she was taken home at 5 days of age. During a second pregnancy, the mother took 15mg diazepam daily, and the infant was born with no complications. Both children, who were breast-fed by the mother who was still taking diazepam, have shown normal physical and intellectual development.

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1953 Clinical trial of live measles vaccine given alone and live vaccine preceded by killed vaccine. (Fourth Report of the Medical Research Council by the Measles Subcommittee of the Committee on Development of Vaccines and Immunization Procedures.) *Lancet*, 2(8038):571-575, 1977.

Follow-up over a 12-year period of more than 5,000 children given live attenuated measles vaccine at age 10 months to 2 years shows that a high level of protection has been maintained. Protection from killed vaccine followed by live vaccine was not as good during the early years of the trial but has been similar to that of live vaccine alone during the last 5 years. There is no evidence of waning protection in either vaccine group after 12 years. When measles did occur in vaccinated children, cases were usually milder and required less medical attention than cases in the unvaccinated. Ninety-two percent in the killed/live vaccine group and 95 percent in the live vaccine group had hemagglutination-inhibiting antibody titers of 16 or greater. Boosting effects of revaccination occurred mostly in children who were vaccinated before 1 year of age (particularly those vaccinated at less than 9 months of age, those given killed vaccine only, and those given immunoglobulin with the vaccine). These results suggest that routine revaccination is undesirable. (17 refs.)

1954 **JEWETT, JOHN FIGGIS.** Fetal death due to tight nuchal cord and sepsis. *New England Journal of Medicine*, 297(14):785-786, 1977.

A case is reported in which premature fetal death occurred due to occult chorioamnionitis and a tight nuchal cord. An overnight delay in initiating birth probably cost the infant its life, although there was no clinical evidence of sepsis, and other indicators pointed to fetal lung maturity. No orders were written to record the fetal heart rate overnight at intervals of 2 to 4 hours. If this precaution had been taken, it is almost certain that premonitory evidence would have precipitated action before 6:30 AM, when the first sign of serious difficulty was detected. However, since sepsis was the occult cause of fetal death and of maternal illness and may have caused membrane rupture in the first place, there is no assurance that the infant would have survived if born earlier. Neonatal sepsis, when caused by Group B beta-hemolytic streptococci, is difficult to detect and can be rapidly fatal. Cases similar to the one reported here will be repeated until improved means for detecting Group B streptococci are found.

1955 **KANDALL, STEPHEN R.; ALBIN, SUSAN; GARTNER, LAWRENCE M.; LEE, KWANG-SUN; EIDELMAN, ARTHUR; & LOWINSON, JOYCE.** The narcotic-dependent mother: fetal and neonatal consequences. *Early Human Development*, 1(2):159-170, 1977.

A study of 230 infants born to drug-dependent women and 33 infants born to ex-addicts indicated that methadone treatment during pregnancy was associated with more consistent prenatal care, more normal fetal growth, and reduced infant mortality in comparison to the heroin group. Meconium staining of amniotic fluid was increased in the heroin and heroin-methadone groups; this was not associated, however, with an increase in meconium aspiration or a reduction in Apgar scores. Intrauterine growth retardation of infants of former heroin addicts who were free of narcotic use during pregnancy was equally severe to that of current addicts. Birth weights and gestational age were higher in the methadone group than either the heroin or ex-addict but did not equal controls. However, neonatal withdrawal from methadone, on the basis of medication necessary to control symptoms, was more severe than heroin withdrawal. Neonatal seizures occurred in 1.5 percent of the heroin group and 10 percent of the methadone group. Severity of methadone withdrawal did not correlate with last maternal methadone dose. Infants born to mothers on a methadone maintenance program were more likely to be returned to a parent than infants born to heroin addicts. (30 refs.)

1956 **DARBY, CHARLES P.** Treating *Pseudomonas cepacia* meningitis with trimethoprim-sulfamethoxazole. *American Journal of Diseases of Children*, 130(12):1365-1366, 1976.

A case of neonatal meningitis caused by *Pseudomonas cepacia*, which has proven resistant to a wide range of antibiotics, was treated successfully with a combination of 1 part trimethoprim and 5 parts sulfamethoxazole (Bactrim) administered for 3 weeks after other antibiotic therapies had failed. These results do not imply that trimethoprim-sulfamethoxazole (Bactrim) should be a primary drug for the treatment of meningitis caused by common organisms, but rather that it should be considered in cases where unusual organisms may resist other antibacterial agents. (23 refs.)

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1957 **BARKIN, ROBER M.; GREER, CHARLES C.; SCHUMACHER, CAJSA J.; & MCINTOSH, KENNETH.** *Haemophilus influenzae* meningitis. *American Journal of Diseases of Children*, 130(12):1318-1321, 1976.

Two childhood cases of *Haemophilus influenzae* meningitis are presented in consideration of appropriate antibiotic treatment alternatives in view of the development of ampicillin-resistant *H. influenzae* strains. Although chloramphenicol is the most widely accepted alternative to ampicillin, which is the principal drug in treating *H. influenzae* type B, it apparently induced neutropenia in these 2 patients, indicating bone marrow depression and requiring that it be replaced with streptomycin sulfate and sulfonamides. If no ampicillin-resistant strains have been identified in a particular geographical area, ampicillin may be used for *H. influenzae* meningitis, provided that the clinical course is monitored closely and sensitivity testing performed rapidly. If resistant strains have been identified, ampicillin and chloramphenicol should be administered intravenously. If there is bone marrow depression, or a family history of aplastic anemia, chloramphenicol should be replaced by a combination of streptomycin and sulfadiozine or tetracycline. No matter what therapy is used, the patient's clinical condition should be monitored carefully. (39 refs.)

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1958 **JONES, RONALD N.; SLEPACK, JERRY; & EADES, ANNE.** Fatal neonatal meningococcal meningitis: association with maternal cervical-vaginal colonization. *Journal of the American Medical Association*, 236(23):2652-2653, 1976.

A case of fatal meningococcal meningitis in a 15-day-old infant born to a mother with culture-proven cervicovaginal *N. meningitidis* at 36 weeks gestation is reported. In the absence of a clinical therapeutic precedent or symptoms, and

since no maternal symptoms, e.g., vaginal discharge or discomfort, were noted, the colonization was not treated when it was found at 36 weeks into the pregnancy. The epidemiological importance of the organism *N. meningitidis* in pregnancy and the neonatal period must be reevaluated. Studies are urgently needed to establish the efficacy and type of antibiotic prophylaxis during the third trimester. (3 refs.)

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1959 **LIGHTFOOTE, JOHNSON; BLAIR, JOSEPH; & COHEN, JAMES R.** Lead intoxication in an adult caused by Chinese herbal medication. *Journal of the American Medical Association*, 238(14):1539, 1977.

A 59-year-old woman presented with severe lead intoxication caused by ingestion of prescribed herbal medicine. Many of the well-known hematologic manifestations of lead poisoning were displayed: anemia resulting from impaired erythrocyte production associated with ringed sideroblasts, pyrimidine accumulation within the RBCs, and probable shortened RBC survival. Additional neurological symptoms and abdominal pains were quickly resolved with chelation therapy. Analysis of the brick-red, spherical, 3-mm-diameter, rough-surfaced herbal pills showed a lead content of 0.5mg per pill. At 30 pills per day, the patient was ingesting up to 15mg of elemental lead daily. This is the first known case of lead poisoning caused by herbal health pills. The herbalist had obtained the pills by mail from Hong Kong and was not aware of their lead content. This communication should alert physicians to the possibility of subacute lead poisoning in patients taking herbal medicine. (3 refs.)

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1960 **CROSBY, WILLIAM H.** Lead-contaminated health food: the tip of an iceberg. *Journal of the American Medical Association*, 238(15):1544. (Letter)

The accidental poisoning of a California housewife from herbal health pills imported from Hong Kong (*Journal of the American Medical Association*, 237:2627, 1977) points to the need for Food and Drug Administration (FDA) guidelines and rules for maintaining the purity of health foods. Although the FDA has been working toward clearly established tolerance levels of heavy metal contaminations in foods through random analysis of food samples, policing health foods is more difficult because they are small-market items. Physicians are urged to inform the FDA of sources of poisoning through submitting the suspected material for toxicologic analysis. Although some processors of health food are struggling with the problem of quality control, they have no standards to comply with except informally suggested reasonable goals. However, the easing of money constraints on the FDA sooner or later should result in the provision of more definite regulations.

Scripps Clinic and Research
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1961 **PERKINS, RICHARD P.** Treatment of toxemia of pregnancy. *Journal of the American Medical Association*, 238(20):2143-2144, 1977. (Letter)

In reply to an earlier letter by Dr. Keith (237:1570, 1977), objections are recorded against the use of diazoxide for toxemia associated with pregnancy, and criticisms are made of Keith's thinking regarding hypertension and pregnancy in other areas. The risk of a sudden drop in blood pressure associated with the use of diazoxide is a clear danger to the fetus, which is already severely compromised by restricted uterine perfusion. The majority of obstetrician-gynecologists knowledgeable in the management of hypertension in pregnancy believe that the use of diazoxide is neither necessary nor generally reasonable when a viable fetus is present. Also, the diagnosis of toxemia generally applies to hypertension and proteinuria in association with pregnancy. The occurrence of associated convulsions requires the specific diagnosis of eclampsia. Diuretic therapy should not be used with patients with pre-eclampsia, except in rare cases of severe cardiac failure. The only drugs normally indicated for safe management of hypertension in patients whose condition demands delivery of the fetus are hydralazine and magnesium sulfate. Should cardio-

dynamic activity be excessive, small measured doses of propranodol hydrochloride might be helpful but are rarely needed. All modes of therapy dangerous to the fetus should be discouraged. (3 refs.)

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1962 **VAISRUB, SAMUEL.** Vitamin abuse. *Journal of the American Medical Association*, 238(16):1762, 1977. (Editorial)

The serious consequences to physical health in the overuse of vitamins A and D are described, and restriction of sales is advocated as a step toward control of vitamin ingestion. When consumed in excessive amounts, vitamin D can cause acute toxic symptoms of nausea, vomiting, polyuria, and headache, and when taken during a prolonged period, it may result in hypercalcemia, calciuria, soft-tissue mineralization, generalized weakness, anorexia, and lethargy. Vitamin A intoxication results in hypervitaminosis A, a diagnosis that is usually missed in the early stages unless its source is immediately apparent. The abolition of the Proxmire amendment, which removes the ceiling from the dosages of vitamins sold without a prescription, is recommended. Restriction of vitamin sales would meet increasing public resistance, requiring a great deal of persuasive effort to overcome. The physician who prescribes vitamins is also in need of persuasion--a task made difficult by the unfounded enthusiastic reports on the uses of megavitamin therapy that occasionally are published in medical journals.

1963 **WHITE, PHILLIP L.** The lid is off. *Journal of the American Medical Association*, 238(16):1761-1762, 1977. (Editorial)

Recent restrictions imposed by the courts and Congress on the Food and Drug Administration's (FDA) authority to control the dosages of vitamins and mineral preparations are described. In June 1977, the Second Court of Appeals, reversing a lower court decision, removed the limits of 10,000 IU and 400 IU placed on over-the-counter multiple vitamin preparations containing vitamins A and D, respectively. In so ruling, the court declared that toxicity was not included as an element in the statutory definition of a drug. Also, since vitamins are sold as dietary supplements, and not as drugs, the FDA could not regulate them as drugs. In 1976, Congress directed that the FDA could not control the upper limit of vitamins and other dietary supplements unless their safe use required medical supervision. This places in question FDA's definitions for safe limits for vitamin and mineral preparations intended for infants, children younger than 12 years old, and pregnant and lactating women. With restrictions now lifted on the amounts in vitamin and mineral pills, physicians should be on the alert for new problems related to vitamin and mineral toxicity.

American Medical Association
Chicago, Illinois

1964 **SABIN, ALBERT B.** Varicella-zoster virus vaccine. *Journal of the American Medical Association*, 238(16):1731-1733, 1977. (Editorial)

A review of test results from the clinical trials of varicella-zoster virus vaccine concludes that further studies and clinical trials of the vaccine on a large scale hold promise for successful control of varicella-zoster infection. The development of an effective vaccine against chicken pox is desirable because it sooner or later infects nearly every child under 10 years of age and can be severe and even fatal in children with chronic diseases, in those receiving cortisone therapy, or in children with malignancies receiving chemotherapy. Herpes zoster results from the activation of complete varicella-zoster virus genome that usually invades only single sensory ganglia during a primary infection. The virus may remain latent for from one year to several decades. Testing by Takahashi and his associates in 1974 of a live vaccine from a strain of varicella virus upon a total of 181 seronegative children resulted in a mild, brief fever and rash in only a few children, among whom 125 were hospitalized and 54 had been receiving immunosuppressive therapy. Arguments against using the vaccine include the following: (1) The vaccine itself may cause zoster, and it would take decades to find this out; (2) Markers have not been recognized which can be used to predict how a given strain of zoster vaccine will behave with respect to causing zoster; (3) Since the immunity may not be long-lasting, use of the vaccine may create the risk of more severe disease in adults; and (4) Naturally occurring varicella can be severe and even fatal in immunocompromised children. These arguments are countered point by point. (17 refs.)

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Charleston, South Carolina

1965 **MEHR, KENNETH A.; & ALBANO, LINDA.** Failure of levamisole in herpes simplex. *Lancet*, 2(8041):773-774, 1977. (Letter)

A controlled double blind study of the effect of levamisole on recurrent herpes simplex in 28 informed volunteers revealed that levamisole has no place in the treatment of individual episodes of herpes simplex. The average duration of the lesions over the 6-month trial period for the levamisole-treated group (39 episodes) was 6.5 days; for the placebo-treated group (28 episodes) it was 6.6 days. The sex of the patient, the site of the lesions, and the interval between episodes did not account for any significant differences. A separate analysis of 5 males with genital herpes (3 on levamisole and 2 on placebo) having 6-8 episodes each showed no significant benefit when average time between the first 3 episodes was compared with the time between the last 3 episodes. Although another schedule of administration of levamisole might have produced other results, in terms of prophylaxis, the schedule used was that recommended by the manufacturer. Earlier regimens in which levamisole was given more frequently may no longer be justified in view of reports of leukopenia in patients taking the drug in this manner. (11 refs.)

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1966 **ADAMS, D. H.; & CAMERON, K. R.** Derivative of adenine arabinoside in experimental herpes encephalitis. *Lancet*, 2(8041):760, 1977. (Letter)

A single course of intracerebral injections of 9-β-D-arabinofuranosyladenine-5′-phosphate (Ara-A-5′-P) in 25μl (20-25mg/kg body weight/day) for 3 days beginning 3 days after infection gave the best treatment results with BKW albino mice infected with herpes simplex virus (HSV); treatment just before death was ineffective. Under these conditions, the mortality rate was reduced to about 25 percent 3 weeks after infection (it had been 90-100 percent without treatment). A few animals died subsequently, but 50 percent of the mice were still alive after 6 months. When administered intraperitoneally at 100-125mg/kg daily for 8 days, Ara-A-5′-P gave some protection; the mortality rate was about twice that found after intracerebral injection. Different treatment schedules combining intracerebral and intraperitoneal routes and a range of doses did not confer any advantage over the 3 daily intracerebral doses. The low solubility of Ara-A precludes its use by the intracerebral route; it has not been tried intraperitoneally. Cytarabine (Ara-C) administered intracerebrally also reduced the mortality rate of HSV-infected mice, but first indications are that the survival rate is lower than that achieved with Ara-A-5′-P. (11 refs.)

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1967 **NIGHTINGALE, ELENA O.** Recommendations for a national policy on poliomyelitis vaccination. *New England Journal of Medicine*, 297(5):249-253, 1977.

The Institute of Medicine Committee for the Study of Poliomyelitis Vaccines of the National Academy of Sciences, prompted by such factors as declining numbers of adequately vaccinated persons, has reexamined poliomyelitis vaccination programs in the United States and has recommended the continued use of live virus vaccines for infants until about 90 percent of the people are adequately immunized. The use of the live attenuated oral poliovirus vaccine (OPV) is preferred over the killed or inactivated vaccine (IPV) because of its ease of administration (oral instead of injected), expected long lasting immunity, and the production of bowel immunity, which would prevent the transmission of wild virus. Only extremely rare cases of vaccine-associated paralytic disease occur in OPV recipients and their contacts. However, certain categories of persons, such as people with heightened susceptibility to infection, including immunodeficient children, should receive IPV. Also, vaccination with OPV of children 11 to 12 years old is suggested to reduce vaccine-associated disease when they become parents of vaccinated infants. Recommendations are made on education, research, liability and informed consent as they pertain to prevention of poliomyelitis. (7 refs.)

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1968 **DAVIS, LARRY E.; BODIAN, DAVID; PRICE, DONALD; BUTLER, IAN J.; & VICKERS, JAMES H.** Chronic progressive poliomyelitis secondary to vaccination of an immunodeficient child. *New England Journal of Medicine*, 297(5):241-245, 1977.

As illustrated by the case of an immunodeficient child (a short-limbed dwarf) with chronic progressive poliomyelitis, attenuated poliovirus can produce a slowly progressive neurologic disease with atypical signs and symptoms. Developing poliovirus, Type II, after she had received live polio vaccine, the patient's throat and stool contained live poliovirus while she was alive, and the virus was present at several sites within the brain after her death of acute *Pneumocystis carinii* pneumonia at 11 months of age. The brain isolate was classified as vaccine-like on the basis of temperature sensitivity and antigenic markers. However, in the monkey neurovirulence test, the brain isolate produced moderately severe lesions throughout the spinal cord and brainstem and appeared nonvaccine-like. Thus, the brain isolate demonstrated a dissociation between the antigenic and neurovirulence markers. This case also emphasizes the need to diagnose immunodeficiency as early as possible, so that live virus vaccines will not be administered. (14 refs.)

Department of Neurology
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1969 **SOTA, EMILIO; & *SILVERIO, JOHN.** Report of five children with *Haemophilus influenzae* pneumonia: resistance to ampicillin must always be looked for. *Clinical Pediatrics*, 15(5):419-421, 1976.

Haemophilus influenzae pneumonia was diagnosed in 5 female children (3 months to 4.5 years of age) at a community hospital. Two cases were complicated with acute otitis media and one with acute gastroenteritis. Another had right torticollis which was probably unrelated to the primary infection. Radiologic patterns included lobar pneumonia (2 cases), bronchopneumonia (2 cases), and interstitial pneumonia (1 case). The children were treated with carbenicillin (1 case, 600mg/kg/day), ampicillin (2 cases, 200mg/kg/day); (1 case, 400mg/kg/day), and chloramphenical (1 case, 100mg/kg/day), intravenously. All 5 patients recovered. Aggressive diagnosis is especially important since the development of ampicillin-resistant *H. influenza* strains. (20 refs.)

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1970 **IYER, PRABHAMANI V.; KAHLER, JOHN H.; & JACOBS, NORMAN M.** Penicillin-resistant pneumococcal meningitis. *Pediatrics*, 61(1):157, 1978. (Letter)

An 8-month-old boy presented initially with coryza, fever, irritability, lethargy, and a positive blood gram-positive organism culture, but without signs of meningitis. The first CSF examination was negative but a repeat CSF exam was abnormal with a high WBC count and positive cultures. Intravenous penicillin G improved the child's clinical condition and was continued for 9 days. However, 24 hours after discontinuation, the child's condition deteriorated clinically with lethargy, poor feeding, and nuchal rigidity. Ampicillin (400mg/kg/day) was begun and continued for 10 days. The child was afebrile within 48-72 hours and remained clinically asymptomatic. This is the third case of pneumococcal meningitis caused by a relatively penicillin-insensitive organism. (5 refs.)

Section of Infectious Disease
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1971 **MYERS, MARTIN G.** Longitudinal evaluation of neonatal nosocomial infections: association of infection with a blood pressure cuff. *Pediatrics*, 61(10):42-45, 1978.

During a 21-week period of surveillance, 46 of 248 infants at risk (18.5 percent) acquired 52 infections in the special care nursery area, giving a nosocomial infection rate of 21.0 percent. Of these 248 infants, 54 died while in the special care

nursery, 8 from causes related to their infection. Thus the mortality from a nosocomial infection was 15.4 percent. The development of neonatal intensive care units has reduced the mortality of sick newborns but has also introduced devices and techniques with potential infectious complications. In this case, a blood pressure cuff, utilized for all infants in the nursery, was associated with an increased rate of infection. Longitudinal surveillance of infections acquired during hospitalization has only recently come under study. (14 refs.)

Division of Infectious Diseases
Department of Pediatrics
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1972 **LILIEN, LAWRENCE D.; RAMAMURTHY, RAJAM S.; & PILDES, ROSITA S.** *Candida albicans* meningitis in a premature neonate successfully treated with 5-fluorocytosine and amphotericin B: a case report and review of literature. *Pediatrics*, 61(1):57-61, 1978.

A 45-day-old premature infant was successfully treated with amphotericin B (0.1-1.0mg/kg/day) and 5-fluorocytosine 5-FC; 150mg/kg/day) for *Candida albicans* meningitis. The child had suffered from birth anoxia and required respiratory assistance. Jaundice developed and necrotizing enterocolitis was revealed by surgical exploration. A patent ductus arteriosus developed following surgery and was controlled with digoxin and furosemide. The infant subsequently developed hyperbilirubinemia for which he was given an exchange transfusion. Oral candidiasis developed and was treated with oral nystatin. The child then developed symptoms of poor weight gain and poor sucking. His surgical wound dehisced and a grossly bloody lumbar puncture revealed a CSF glucose level of 10mg/dl and a protein level of 690mg/dl. Head circumference increased 2cm in one week although subdural and ventricular taps, brain scan, and EEG were basically normal. Treatment with ampicillin and gentamicin was ineffective. *Candida* meningitis was diagnosed and treatment with 5-FC (60 days) and amphotericin B (45 days) started. At 18 months of age his develomental age as measured by the Gesell test averaged 16 months. A review of *Candida* meningitis diagnosed before death in 11 other infants less than one year of age is presented. (21 refs.)

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1973 **WEIBEL, ROBERT E.; BUYNAK, EUGENE B;; MCLEAN, ARLENE A.; & *HILLEMAN, MAURICE B.** Persistence of antibody after administration of monovalent and combined live attenuated measles, mumps, and rubella virus vaccines. *Pediatrics*, 61(1):5-11, 1978.

Hemagglutination-inhibiting measles antibodies were retained in comparable levels 8 years after vaccination with Enders' original Edmonston and more attenuated Moraten (Attenuvax) and Schwarz line measles vaccines. The administration of Jeryl Lynn mumps virus vaccine (Mumpsvax) maintained a neutralizing antibody titer without substantial decline for at least 9.5 years. The patterns of antibody persistence 7.5 years after administration of combined measles-mumps-rubella (M-M-R) and mumps-rubella (Biavax) vaccines, 6 years after administration of measles-rubella vaccine (M-R VAX), and 4 years after administration of measles-mumps vaccine (M-M-VAX) were the same as for the monovalent vaccines, indicating no alteration in the retention of immunity. HPV-77 duck-modified rubella vaccine (Mernvax) produced antibodies which persisted for 7.5 and 7 years in children and adults, respectively. Long term persistence of antibodies was evidenced by an increase in homologous antibody titer following subclinical reinfection (which paralleled the increase found in unvaccinated natural infections). All these vaccines were licensed for general use in the United States between 1963 and 1973. (27 refs.)

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1974 **ROBILLARD, JEAN E.; RAMES, LINDA K.; JENSEN, ROBERT L.; & ROBERTS, ROBERT J.** Peritoneal dialysis in mercurial diuretic intoxication. *Journal of Pediatrics*, 88(1):79-81, 1976.

A 3-month-old girl who underwent a Rashkind procedure for transposition of the great arteries

was admitted in cardiac failure. She was treated with oxygen, digoxin, and mercaptomerin (MCP) over a 7-day period, receiving a total of 62mg of MCP. The child subsequently developed oliguria, respiratory distress, and generalized cyanosis. Urine analysis showed 4+ protein, 4+ glucose, and the presence of granular casts, red blood cells, white blood cells, and tubular epithelial cells. Other serum and blood levels also indicated acute renal failure. Blood and urine mercury levels determined before peritoneal dialysis were 456μg/dl and 1,932μg/dl, respectively. Peritoneal dialysis and intramuscular injections of dimercaprol were given. The blood mercury level was decreased from 465μg/dl to 79μg/dl and the anuria which began with dialysis resolved. However, the child died on the fourteenth day due to a deterioration of respiratory status and multiple cardiac arrests.

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1975 **MOORE, B.; LEE, P.; HEWISH, M.; DIXON, B.; & MUKHERJEE, T.** Coronaviruses in training centre for intellectually retarded. *Lancet*, 1(8005):261, 1977. (Letter)

Coronavirus-like particles were revealed by electron microscopy in the feces of 10 males and 4 females (chronological age 6 to 23 years) out of a total of 60 residents sampled in a training center for the intellectually retarded in Adelaide, South Australia. The index case, a 6-year-old boy from the center, was hospitalized with gastroenteritis; *Shigella sonnei* was isolated, but electron microscopy revealed coronavirus-like particles as well. The Center has an excellent record of freedom from gastroenteritis; however, the house in which the index case resided had reported sporadic cases of diarrhea in which no bacterial pathogens were isolated. The virus has been demonstrated in the index case on 3 or 4 occasions over a 3-month period; 4 or 5 other excretors were still shedding virus 2-4 weeks after the initial sampling. Similar virus particles were noted previously in the feces of Australian aborigine infants during an outbreak of gastroenteritis in which the evidence pointed to a rotavirus etiology. However, feces from the one aborigine girl resident in the survey houses were negative on 2 occasions. (3 refs.)

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1976 **BONEU, B.; BIERME, R.; *FOURNIE, A.; & **PONTONNIER, G.** Factor-VIII complex fetal growth retardation, and toxaemia. *Lancet*, 1(8005):263, 1977. (Letter)

Fourteen patients without any symptom of toxemia but with idiopathic fetal growth retardation, 17 patients with symptoms of toxemia in the last weeks of pregnancy but without further fetal growth regardation, 16 patients with early toxemia and subsequent fetal growth retardation (followed, in 6 cases, by perinatal death), and 72 control pregnant women were studied for factor VIII levels at least once during pregnancy, at delivery, and 48 hours later. Factor procoagulant activity, von Willebrand factor, and VIII-related antigen were measured, respectively, by the one-stage assay, the ristocetin assay, and Laurell immunoelectrophoresis. As found previously, the 3 components of factor VIII complex increased during pregnancy, reached a maximum at delivery, and then fell within 48 hours in all 4 groups studied. Significant differences found between controls and patients with toxemia were consistent with the onset of toxemic symptoms, and in 2 cases they preceded the onset of clinical toxemia. The results indicated that the dosage of factor VIII-related antigen is a more sensitive index than the assessment of factor VIII procoagulant activity in predicting fetal prognosis. (11 refs.)

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1977 **LEWIS, P. D.; PATEL, A. J.; BENDEK, G.; & BALAZS, R.** Do drugs acting on the nervous system affect cell proliferation in the developing brain? *Lancet*, 1(8008):399-401, 1977.

Drugs which alter the balance of neurotransmitter activity may, while failing to cause gross structural malformations of the brain, produce long-lasting functional disturbances if administered when the brain is developing. Besides having its expected

actions, reserpine administered during pregnancy interfered with cell proliferation in the brain of suckling rats. Some of the behavioral abnormalities observed following treatment during development with drugs acting on the nervous system may be correlated with disturbed cell formation in the brain. An important factor in this context may be the timing of the pharmacological insult, with some cells being irreversibly lost if the influence affecting cell generation is present at the time that they are produced. Neurotransmitters, apart from their conventional role, may also function as neurohumors and be involved in the regulation of cell proliferation in the nervous system. Further work is required to establish whether such widely used groups of drugs as phenothiazines, β-adrenergic agonists, and β-adrenergic antagonists affect cell proliferation in the developing brain when given to a pregnant mother. (21 refs.)

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1978 **SCHLOSSBERG, DAVID; & TOPOLOSKY, MAURY K.** Military rubella. *Journal of the American Medical Association*, 238(12):1273-1274, 1977.

An outbreak of rubella in a group of military personnel aged 17 to 22 is described. Rubella was diagnosed in 46 patients. The onset was considered explosive, with 28 cases in the first week, and a second wave of 8 cases occurring in the third week. Unusual symptoms included the complaint of testalgia by 25 percent of the men. Paired sera were obtained in 31 of the patients. Of these, 17 showed diagnostic evidence of infection. One patient had been immunized 4 months previous to the outbreak, suggesting a primary vaccine failure. Another patient had been vaccinated during the month of the outbreak, suggesting insufficient time between vaccination and virus exposure. (8 refs.)

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1979 **SCOTT, J. S.; & JENKINS, D. M.** Immunogenetic factors in aetiology of pre-eclampsia eclampsia (gestosis). *Journal of Medical Genetics*, 13(3):200-207, 1976.

The evidence of the genetic and immunogenetic factors in the etiology of pre-eclampsia/eclampsia (gestosis) is reviewed. The problems of definitive diagnosis, the possibility of a multifactorial etiology, and the difficulties of differentiating trigger and effector mechanisms are discussed. Findings indicate that gestosis carries an inherited predisposition to occur with immunogenetic mechanisms operating in some cases and chromosomal factors such as triploidy operating in others. The interrelation of the complex changes in genetic, immunological, endocrine, coagulation, and vasopressor systems involved in gestosis remains to be established. (53 refs.)

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1980 **MCFARLANE, A.; & SCOTT, J. S.** Pre-eclampsia eclampsia in twin pregnancies. *Journal of Medical Genetics*, 13(3):208-211, 1976.

The incidences of milk or severe pre-eclampsia, eclampsia, chronic hypertensive disease, and unclassified toxemia were studied in 1,045 twin gestations classified according to zygosity. Comparative analyses of different forms of late pregnancy hypertension and different categories of twin pregnancies showed no difference in the incidence of pre-eclampsia/eclampsia between dizygous (DZ) and monozygous (MZ) pregnancies in this population except in the data on estimated MZ multiparous twin pregnancies with mild pre-eclampsia. Comparison of certainly DZ twins, presumed MZ twins, and estimated MZ twins with singleton pregnancies matched for age, parity, gestation length, and sex of child showed an incidence of pre-eclampsia/eclampsia 3 times greater in twin pregnancies than in singletons. Apparently the factor(s) responsible for the increased incidence of pre-eclampsia in twins do not represent a mere summation of those operative in 2 single pregnancies.

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1981 **SCHREINER, RICHARD L.; COATES, THOMAS; & SHACKELFORD, PENELOPE G.** Possible breast milk transmission of group B streptococcal infection. *Journal of Pediatrics*, 91(1):159, 1977. (Letter)

Two cases are reported of group B beta hemolytic streptococcal (GBBS) meningitis in breast-fed infants whose mothers had GBBS of the same subtype isolated from their breast milk. In the first case, 10 days after delivery the mother was treated with dicloxacillin because of erythema and tenderness of the breasts, but breast feeding was continued. At 11 days of age, the infant developed vomiting and irritability, and cerebrospinal cultures grew GBBS type 3. Cultures of the maternal breast milk grew the same type of bacteria. In the second case, fever, irritability, ptosis of the right eye, and bulging fontanelle were noted in a breast-fed infant at 1 month of age. Again, cultures grew GBBS type 3 from the cerebrospinal fluid and from the mother's breast milk. It is tempting to postulate mother to child transmission in these cases, but it also possible that transmission occurred from infant to mother. Even so, the nipples and milk of mothers with mastitis or mothers whose infants develop GBBS diseases should be cultured. (3 refs.)

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1982 **KENNY, JEAN F.; & ZEDD, ARNOLD J.** Recurrent group B streptococcal disease in an infant associated with the ingestion of infected mother's milk. *Journal of Pediatrics*, 91(1):158, 1977. (Letter)

A case is reported of an infant who developed group B streptococcal meningitis 5 weeks after apparent successful treatment of septicemia due to this organism during the newborn period. History and culture results indicated that the second infection was probably associated with ingestion of infected mother's milk. Infection of the breast follows colonization of the infant during the first days of life and may be the result of aspiration of organisms into the mammary duct. Since staphylococcal disease has occurred in breast-fed infants whose mothers had breast infections, it is possible that group B streptococci might similarly colonize and multiply in human milk, producing disease in the nursing infant. (4 refs.)

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1983 **MODLIN, JOHN F.; HALSEY, NEAL A.; HERRMANN, KENNETH L.; BHETTAY, E.; KIPPS, A.; & MCDONALD, R.** Infantile onset of SSPE. *Journal of Pediatrics*, 91(1):168-169, 1977. (Letters)

Dr. Modlin and colleagues point out that since an infant who developed symptoms of subacute sclerosing panencephalitis at 10 months of age did not develop the classic EEG pattern, and no postmortem examination was performed, the diagnosis of SSPE was made on the basis of the presence in the cerebrospinal fluid of measles antibody titer, which is not pathognomonic of SSPE. The high CSF complement fixation titer found in the patient is highly suggestive of SSPE, but with an unusually high serum titer of 1 to 8,000 the serum/cerebrospinal fluid ratio of 125/1 may be compatible only with passive transfer of serum antibody across the blood brain barrier. Dr. Bhettay and colleagues reply that the serum/CSF antibody ratio of 125/1 has been reported in the past in serial cases of SSPE. The hemagglutination-inhibition test was not used since the CSF test for measles antibody is the single most valuable test, certainly more diagnostic than a suggestive encephalogram. (3 refs.)

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1984 ***HERVADA, ARTURO R.; & **MCCRACKEN, GEORGE H., JR.** Dosage of ampicillin in the treatment of bacterial meningitis. *Journal of Pediatrics*, 90(4):670-671, 1977. (Letters)

There are striking disparities in the recent literature regarding the proper dosage of ampicillin in the treatment of bacterial meningitis in children. There are no data which demonstrate the superiority of one ampicillin regimen over another, and there is no evidence that antimicrobial activity in excess of the minimum inhibitory concentration in cerebrospinal fluid improves survival. Because of the emergence of ampicillin-resistant strains of *Haemophilus influenzae* type b, chloramphenicol and either penicillin G or ampicillin should be used as initial therapy of meningitis. If the pathogen is shown to be a non-penicillinase producing organism, ampicillin or chloramphenicol should be used for the balance of 7 to 10 days therapy. A regimen of 200mg/kg/day of ampicillin in 4 divided doses is apparently adequate. (16 refs.)

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1985 **SHAPIRO, SAMUEL; SLONE, DENNIS; HARTZ, STUART C.; ROSENBERG, LYNN; SISKIND, VICTOR; MONSON, RICHARD R.; MITCHELL, ALLEN A.; & HEINONEN, OLLI P.** Are hydantoins (phenytoins) human teratogens? *Journal of Pediatrics*, 90(4):673-674, 1977. (Letter)

There were methodological deficiencies in a study which led Hanson and associates to conclude that hydantoins are serious teratogens in human beings. The study was not double-blind, and therefore permitted observer bias in diagnosis of dysmorphic features. Moreover, before attributing dysmorphic features, growth retardation, and MR to hydantoins, it is necessary to compare children born to epileptic mothers who received hydantoins during their pregnancy with children born to epileptic mothers who did not receive the drugs. Although a variety of malformation patterns are associated with maternal epilepsy, when the comparisons were confined to the offspring of epileptic mothers no statistically significant associations with phenytoin exposure were found. On present evidence, it remains to be established that hydantoin anticonvulsants are teratogenic in human beings. (6 refs.)

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1986 **HANSON, JAMES W.; & SMITH, DAVID W.** Are hydantoins (phenytoins) human teratogens?: reply. *Journal of Pediatrics*, 90(4):674-675, 1977. (Letter)

In reply to the comments of Shapiro and associates on the authors' study of the teratogenic effects of hydantoin anticonvulsants, it is unlikely that observer bias was a serious factor, even though the data were not collected in double-blind fashion. Observations of dysmorphic features made many years prior to the description of the fetal hydantoin syndrome were similar to those made by observers who were aware of the syndrome. The study was not designed to separate the effects of epilepsy *per se* from the effects of drug therapy, but to examine the frequency of a characteristic pattern of abnormalities in the offspring of epileptic mothers treated with hydantoins during pregnancy. The conclusion that hydantoins are teratogenic is based on the failure to find a single infant of an epileptic mother not treated with hydantoin during pregnancy who showed the full pattern of altered growth and morphogenesis referred to as the fetal hydantoin syndrome. (4 refs.)

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1987 ***MILLER, HERBERT C.; **HANSON, JAMES W.; & SMITH, DAVID W.** Fetal growth deficiency: "The causes!" *Journal of Pediatrics*, 90(4):675-676, 1977. (Letters)

In a study of the fetal hydantoin syndrome, results may have been confounded by failure to control for other maternal factors believed to have an adverse effect on growth, such as cigarette smoking, low maternal weight gains during pregnancy, pre-eclampsia, hypertension, heart disease, and kidney disease. However, most human teratogens produce characteristic patterns of abnormalities which frequently allow for recognition. The fact that a characteristic pattern of

malformation, including prenatal growth deficiency, has not been described in infants born to mothers with any of these conditions tends to exclude these factors as a primary cause of this syndrome. Prenatal growth deficiency was defined as birth length at or below the third percentile of the expected range. Although the means of distributions of birth length were not significantly different for case and control groups, all children identified as having multiple features of the fetal hydantoin syndrome were at or below the third percentile for length at time of birth. (1 ref.)

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1988 ***COONROD, J. DONALD; **FEIGIN, RALPH D.; WONG, MICHAEL L.; SHACKELFORD, PENELOPE G.; STECHENBERG, BARBARA W.; DUNKLE, LISA M.; & KAPLAN, SHELDON L.** CIE detection of bacterial antigens in meningitis. *Journal of Pediatrics*, 90(4):676-677, 1977. (Letters)

There are potential problems in using counterimmunoelectrophoresis (CIE) in detecting bacterial antigens in the urine in meningitis. In pneumococcal infection the capsular antigen in the urine has a much lower molecular size than its counterpart in serum or cerebrospinal fluid (CSF), making it more difficult to detect by CIE. Refrigeration of negative plates for 2 hours and, if necessary, 24 hours after electrophoresis facilitates detection of these antigens. There is a risk of obtaining false positive results when concentrating bacterial antigens in the urine. This risk can be lessened by processing the urine immediately or refrigerating it until testing. The combination of CIE, CSF, blood, and urine has been found more reliable than results obtained when a Gram stain or Quellung reaction is interpreted by the average house officer. (5 refs.)

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1989 **ANSARI, B. M.; DAVIES, D. B.; & JONES, M. R.** Calcification in liver associated with congenital cytomegalic inclusion disease. *Journal of Pediatrics*, 90(4):661-662, 1977. (Letter)

Radiologic evidence of calcification of the liver was found in an infant with congenital cytomegalic inclusion disease. Shortly after birth, the infant developed respiratory distress and jaundice and was treated with oxygen therapy and phototherapy. At 18 days, he became anemic and developed hepatosplenomegaly. Radiologic examination at 2 months revealed the liver calcification but no abnormalities of the skull. At 3 months, both infant and mother showed a cytomegalovirus antibody titer of 1:512. Cytomegalovirus was subsequently cultured from the patient's urine. At 14 months, the infant is microcephalic and mentally and physically retarded. (1 ref.)

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1990 **KEATING, JAMES P.** Hypothermic total body washout and intracranial pressure monitoring in Stage IV Reye syndrome: commentary. *Journal of Pediatrics*, 90(4):641, 1977.

Although exchange transfusion, plasmapheresis, dialysis, cross circulation, and total body washout have been advanced as therapy for Reye's syndrome and acute hepatic failure, which are distinct entities, no significant difference has been found in patients treated with exchange transfusions or dialysis in comparison with those who received only supportive care. In some cases, chances for survival may have been reduced by these dramatic forms of therapy, which cannot be evaluated properly until criteria for diagnosis, a reliable system of staging of clinical severity, and the specifics of supportive care are defined. Given the skills included in a team capable of total body washout, it is possible that Lansky's differential findings for patients treated with total body washout and with exchange transfusions may

reflect superior supportive care in the total body washout group. (6 refs.)

1991 **LANSKY, LESTER L.; KALAVSKY, STEVEN M.; BRACKETT, CHARLES E.; WALLAS, CHARLES H.; & REIS, ROBERT L.** Hypothermic total body washout and intracranial pressure monitoring in Stage IV Reye syndrome. *Journal of Pediatrics*, 90(4):639-640, 1977.

Of 12 children with Stage IV hepatic coma with Reye's syndrome, 6 were treated with exchange transfusions and 6 with hypothermic total body washout (TBW). Mean values of serum glutamic oxalacetic transaminase, serum glutamic pyruvia transaminase, ammonia, and prothrombin times were higher in children treated with exchange transfusions than in those treated with TBW. General medical support was similar in the 2 groups, consisting of infusion of 10 to 15 percent glucose in a multiple electrolyte solution on a fluid restricted regimen. Cerebral edema in each group was treated with intravenous mannitol. The use of intracranial pressure monitoring in 3 children in the TWB group determined the frequency of mannitol infusions. All patients who received exchange transfusions died, while 5 of the TWB children survived with no evidence of neurologic sequelae 6 months to 2 years later. The single death in the TBW group may have been related to a 4 hour delay in establishing the diagnosis of Reye's syndrome, which was initially believed to be meningococcal meningitis. (15 refs.)

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Kansas City, Kansas

1992 **PIEROG, SOPHIE; CHANDAVASU, ORADE; & WEXLER, IRVING.** Withdrawal symptoms in infants with the fetal alcohol syndrome. *Journal of Pediatrics*, 90(4):630-633, 1977.

Symptoms of alcohol withdrawal were observed in 6 infants with dysmorphic elements and typical facies (short palpebral fissures, micrognathia, low nasal bridge, long convex upper lip, narrow vermilion border and epicanthal folds) of the fetal alcohol syndrome. The mothers of all these infants had alcohol on their breath at time of delivery and admitted to use of alcohol for "several years" prior to pregnancy. Alcohol withdrawal in the infants was characterized by irritability, tremors, increased muscle tone and respiratory rate, increased spontaneous seizures, opisthotonos, and abdominal distension. Clinical status of the infant improved following treatment with chlorpromazine or phenobarbital, although 3 treated infants still had persistent muscle hypertonicity and tendency to arch the back. (18 refs.)

Department of Pediatrics
Jewish Hospital and Medical Center
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Brooklyn, New York

1993 **SIBER, GEORGE R.; ALPERT, SUSAN; SMITH, ARNOLD L.; LIN, JUEY-SHIN L.; & MCCORMACK, WILLIAM M.** Neonatal central nervous system infection due to *Mycoplasma hominis*. *Journal of Pediatrics*, 90(4):625-627, 1977.

A newborn infant developed a brain abscess and meningitis, probably as the result of perinatal acquisition of *Mycoplasma hominis* from infected amniotic fluid. The etiologic role of *M. hominis* is inferred from repeated isolation of the organism from the central nervous system and from the infant's high serum antibody titer. The concurrent presence of other organisms could not be excluded, since the patient was placed on antibiotics at birth, but repeated examinations with Gram stain and repeated aerobic and anaerobic cultures failed to demonstrate other organisms. The patient gradually improved following treatment with ampicillin and chloramphenicol. (11 refs.)

Department of Infectious Diseases
Sydney Farber Cancer Center
35 Binney Street
Boston, Massachusetts 02115

1994 **BOECKX, R. L.; POSTL, B.; & COODIN, F. J.** Gasoline sniffing and tetraethyl lead poisoning in children. *Pediatrics*, 60(2):140-145, 1977.

Signs of lead encephalopathy with elevated blood lead levels and markedly decreased levels of erythrocytic delta-amino levulinic dehydratase (ALAD) were observed in 2 cases of acute organic lead poisoning following gasoline sniffing. Erythro-

cytic ALAD screening of 43 additional children who were presumed gasoline sniffers revealed a mean ALAD activity of 190 units, compared to a mean of 538 units for a control group. A survey of school children in a second community revealed that 59 percent had decreased ALAD activity, correlated with a history of gasoline sniffing. Only 5 percent of the children had blood lead levels over 40μg/dl. Findings suggest that tetraethyl lead poisoning constitutes a major toxicological problem. Since the ALAD test may indicate the presence of low-level lead ingestion before blood lead levels are elevated, it is a useful screening test in asymptomatic children. (39 refs.)

Health Sciences Centre
685 Bannatyne Avenue
Winnipeg, Manitoba R3E OW1, Canada

1995 **GLASGOW, ALLEN M.; & THALER, M. MICHAEL.** Potential hazard of therapy for Reye's syndrome with urea cycle intermediates. *Pediatrics*, 60(4):557-558, 1977. (Letters)

Available evidence suggests that therapy with urea cycle intermediates will make the hyperammonemia worse in most patients with Reye's syndrome, and use of these compounds to treat this disorder should be limited to carefully controlled experimental situations if they are to be used at all. The potential rise in blood ammonia level in patients with Reye's syndrome results from the fact that urea cycle intermediates are amino acids, and administration of these compounds will increase the ammonia load. The only advantage of citrulline over ornithine or arginine to treat Reye's syndrome is that its metabolism yields only one ammonia, not two. Ornithine can make the hyperammonemia either better or worse, depending upon whether or not the concentration of ornithine is a limiting factor. It has been suggested that two patients with Reye's syndrome had a specific defect in ornithine transcarbamylase with a reduced affinity for ornithine and substrate inhibition by carbamyl phosphate. Such patients would be expected to respond favorably to the administration of urea cycle intermediates, but the evidence indicates that many patients with Reye's syndrome have a different type of defect. (13 refs.)

Children's Hospital National Medical Center
111 Michigan Avenue, N.W.
Washington, D.C. 20009

1996 **NAULTY, CHERYL M.; RODRIGUEZ, WILLIAM; & FLETCHER, ANNE B.** Clinical relapse following group B streptococcal meningitis despite high penicillin dosage: a report of three cases. *Clinical Proceedings*, 33(6):119-122, 1977.

Three cases of clinical relapse of meningitis following Group B streptococcal (GBS) infection are unusual in that all relapses occurred following penicillin dosages exceeding 250,000μ/kg/d, the recommended dosage level to prevent recurrence. In 2 of the cases, the duration of this elevated dosage also was significantly longer than 14 days, the suggested span of time for therapy. A regimen was instituted using 400,000μ/kg/d of penicillin in combination with 50-100mg/kg/d of chloramphenicol, depending on age, for at least 21-28 days following negative cerebrospinal fluid cultures. Four patients with GBS meningitis have been subsequently treated using this therapeutic management and have had no relapses. Preliminary success with chloramphenicol as a second drug now suggests a controlled trial to ensure a true benefit. (5 refs.)

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Washington, D.C.

1997 **CARVALHO, A. DE A.; GIAMPAGLIA, C.M.S.; KIMURA, H.; PEREIRA, O.A. DE C.; FARHAT, C. K.; NEVES, J. C.; PRANDINI, R.; CARVALHO, E. DA S.; & ZARVOS, A. M.** Maternal and infant antibody response to meningococcal vaccination in pregnancy. *Lancet*, 2(8042):809-811, 1977.

The antibody response to meningococcal vaccination with mixed polysaccharide vaccine of meningococcus groups A and C was evaluated in 29 infants, 49-197 days old, and in 21 pregnant women and their offspring. Maternal and infant antibodies were detected by passive hemagglutination. A high frequency of positive results consisting of 20 positive sera for polysaccharide A and 12 for polysaccharide C in the 21 sera were found. Maternal antibodies reached high titres.

Only 1 woman did not respond to vaccination. Placental transfer of antibodies was detected in 7 and 14 newborns for polysaccharides A and C, respectively, but passive transfer was irregular. Findings indicate that existence of maternal antibodies does not guarantee the presence of antibodies in the newborn. The chance of transfer appears to be unrelated to maternal titre and to the period of pregnancy when the mother was vaccinated (2-9 months). Passive immunity persisted 2-5 months in the offspring. Only 1 of the 29 children vaccinated seroconverted, confirming the lack of success in vaccinating children in the first 6 months of life. (13 refs.)

Escola Paulista de Medicina
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1998 **PELTOLA, H.; *MAKELA, P. H.; KAYHTY, H.; JOUSIMIES, H.; HERVA, E.; HALLSTROM, K.; SIVONEN, A.; RENKONEN, O.-V.; PETTAY, O.; KARANKO, V.; AHVONEN, P.; & SARNA, S.** Clinical efficacy of meningococcus group A capsular polysaccharide vaccine in children three months to five years of age. *New England Journal of Medicine*, 297(13):686-691, 1977.

Vaccination of children between the ages of 3 months and 5 years with Group A meningococcal capsular polysaccharide vaccine appeared clinically efficacious on the basis of no findings of meningitis or sepsis in the first year of observation among 49,295 children vaccinated. Six cases caused by Group A meningococci occurred among the 48,977 children who received a control *Haemophilus influenzae* Type b polysaccharide vaccine, and 13 cases were seen among 31,906 unvaccinated children. Following the first trial involving 130,178 children, a second trial with 21,007 children of the same ages who received the meningococcal vaccine had no cases although 5 to 7 would have been expected within the year during the epidemic caused by sulfonamide-resistant Group A meningococci in Finland. (25 refs.)

*Central Public Health Laboratory
Mannerheimintie 166
SF-00280 Helsinki 28, Finland

1999 **LEPOW, MARTHA L.; & GOLD, RONALD.** Further conquest of the meningococcus. *New England Journal of Medicine*, 297(13):721-722, 1977. (Editorial)

Field trials in the United States Army, Brazil, Egypt, the Sudan, and Finland have shown that both Groups A and C meningococcal vaccines are safe and highly effective in preventing Groups A and C meningococcal disease among adults and children over 2 years of age. Vaccines that will be effective in infants 3 to 24 months of age are essential for control of meningococcal disease. The immunogenicity of the Groups A and C polysaccharides is markedly age related. The Group A vaccine has been demonstrated to be effective for infants beginning at the age of 3 months. Although the Group C vaccine is not sufficiently immunogenic in infants to induce protective levels of antibody until 18 to 24 months of age, it should be useful in control of Group C epidemics in which 60-80 percent of cases would be expected to occur in persons over 2 years of age. Efforts are now being made to improve the antigenicity of Group C vaccine in infants. (9 refs.)

University of Connecticut Health
Center
Farmington, Connecticut 06032

2000 **OLESKE, JAMES M.** Experiences with 118 infants born to narcotic-using mothers: does a lowered serum-ionized calcium level contribute to the symptoms of withdrawal? *Clinical Pediatrics*, 16(5):418-423, 1977.

The charts of 118 infants (114 blacks and 4 Puerto Ricans; 65 females and 53 males) born to 108 narcotic-using mothers from 1971 through 1973 were reviewed. The birth weights and head circumferences for all term infants and term small-for-dates infants were lower than those of control infants. There was no difference in the birth weights of term infants of heroin-using versus methadone-using mothers and, surprisingly, no difference in the mean birth weights of clinic and nonclinic narcotic-using mothers. Study infants had significantly more complications during the neonatal period than the control population. Of the term infants in the study group, 54 had a serum-ionized calcium level test done during the first 24 hours. Of these, 33 had withdrawal

symptoms severe enough to require chlorpromazine therapy. The difference in ionized calcium level between these two groups of infants was not significant, but all these patients had a significantly lower ionized calcium (2.11 vs 2.36 mEq/l, $p<0.01$) when compared with normal controls. (31 refs.)

Department of Preventive Medicine
and Community Health
New Jersey Medical School
Newark, New Jersey 07102

2001 **REVERI, MRIDULA; PYATI, SUMA P.; & *PILDES, ROSITA S.** Neonatal withdrawal symptoms associated with glutethimide (Doriden) addiction in the mother during pregnancy. *Clinical Pediatrics*, 16(5):424-425, 1977.

Neonatal withdrawal symptoms were reported secondary to maternal addiction to heroin and glutethimide. The mother had been addicted to heroin for 3 years and also took 4 to 6 tablets per day (0.5g each) of glutethimide at least 3 to 4 times every week. She took both drugs during pregnancy. A baby girl was delivered at 36 weeks gestation. There were no abnormal findings, except that the infant was tremulous and had a high-pitched cry at age 8 hours. She responded quickly and adequately to chlorpromazine on the first day of life, but withdrawal symptoms recurred at 10 days of age. In addition to severe diarrhea, dehydration, tachypnea, irritability, hypertonicity, and diaphoresis, the child cried incessantly and had an anxious, wide-eyed, alert look. Crying ceased dramatically within an hour after 0.25mg of morphine sulfate was injected. She was then kept on 0.25mg of methadone every 6 hours, and all symptoms disappeared within 12 hours. Methadone could finally be stopped only on day 40, and paregoric, on day 45. (12 refs.)

*700 S. Wood Street
Chicago, Illinois 60612

2002 **YEAGER, ANNE S.; MARTIN, HAROLD P.; & STEWART, JOHN A.** Congenital cytomegalovirus infection outcome for the subsequent sibling. *Clinical Pediatrics*, 16(5):455-458, 1977.

The 12 subsequent siblings of infants congenitally infected with cytomegalovirus were studied for evidence of infection and intellectual prognosis. The original siblings in cases 1 to 7 were found to be excreting cytomegalovirus between 0 and 9 days of age; 6 of them were symptomatic at birth. Cases 8 to 12 all had clinical symptoms at birth compatible with classic congenital infection but, owing to lack of earlier investigation, were not shown to be excreting cytomegalovirus until after the newborn period. The intervals between the birth of the first child and the onset of the next pregnancy varied from 4.5 to 43 months. All subsequent siblings were of normal birth weight, and the total immunoglobulin (Ig) M in cord serum was normal in the 7 instances in which it was tested. Developmental quotients ranged from 99 to 110 in 10 infants tested at an average age of 23 months. The remaining 2 children were not formally tested but appeared clinically normal at 3 and 13 months of age. In general, the outcome for the sibling delivered subsequent to the birth of an infant infected with cytomegalovirus appears to be good.

Department of Pediatrics
Stanford University School of Medicine
Stanford, California 94305

2003 **NUSSBAUM, MICHAEL; KAPLAN, ERIC; & SHENKER, I. RONALD.** Failure of rubella immunization among adolescent females. *Journal of Pediatrics*, 91(4):686-687, 1977.

Female adolescents at risk for developing rubella were tested by studying 200 consecutive girls between the ages of 10 and 19 for the presence or absence of rubella hemagglutination inhibition antibodies. There was no difference noted between the age of the girls who had protective antibody titers and those who did not. No rubella antibodies were found in 21.3 percent of the girls tested among all age groups. Of 42 girls with no rubella antibody level, 12 (28.6 percent) gave a positive history of having received vaccine or of having had the disease and thus considered themselves immune. In 19 of these girls (45.2 percent) neither they nor their parents knew whether or not they had received immunization or had a clinical infection. None of these patients sought immunization. Of the total group, 84 did not know whether they had had rubella previously or whether they had been immunized. In 23 girls who thought they knew their history, it was correct. It

is concluded that unless there is definite evidence of rubella immunization, adolescent female patients should be tested for evidence of rubella antibodies regardless of their history. (1 ref.)

Long Island Jewish-Hillside
Medical Center
Department of Pediatrics
New Hyde Park, New York 11040

2004 **HIEBER, J. PATRICK; DALTON, DAVID; SHOREY, JAMES; & COMBES, BURTON.** Hepatitis and pregnancy. *Journal of Pediatrics*, 91(4):545-549, 1977.

Fifty pregnant women with gestational complication of acute viral hepatitis were examined with respect to maternal and fetal outcome. Forty percent of the cases were due to hepatitis B. The clinical course of the maternal disease was unaffected by the fact that the mother was pregnant. Maternal disease had no effect on the incidence of congenital malformations, stillbirths, abortions, or intrauterine malnutrition. There was an increase in the incidence of prematurity (type B 31.6 percent; nontype B 25 percent; overall 27.6 percent) as compared to the incidence of prematurity in the general population (10 to 11 percent). Eight maternal patients developed acute type B hepatitis during the third trimester and 2 of their infants were noted to be chronic asymptomatic carriers of hepatitis B surface antigen. These infants had mild persistent elevations of serum glutamic oxaloacetic transaminase for up to 45 months. (34 refs.)

Department of Pediatrics
University of Texas Health Science
Center
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Dallas, Texas 75235

2005 **GOLDENBERG, ROBIN I.; & *NETER, ERWIN.** Meningitis due to two serotypes of *Escherichia coli*: an infant who recovered. *American Journal of Diseases of Children*, 131(2):213-214, 1977.

A neonate with hyaline membrane disease and aspiration pneumonia developed purulent meningitis on the nineteenth day of life, 3 days after cessation of ampicillin sodium and gentamicin sulfate therapy. Therapy with gentamicin, both systemically and intrathecally, for 2 weeks was ineffective. Blood and cerebrospinal fluid cultures taken on day 19 yielded *Escherichia (E.) coli* 083:H4, and 2 subsequent cerebrospinal fluid specimens yielded *E. coli* 075:H5. Each of 4 specimens of cerebrospinal fluid contained both serotypes simultaneously. The antibiograms of the 2 strains were identical, both being sensitive to gentamicin and ampicillin. Use of ampicillin resulted in prompt sterilization and the patient's recovery. Additional studies revealed that only serotype 075:H5 produced an antigen cross-reacting with the capsular antigen of *Haemophilus influenzae* type B. The patient developed O antibodies in substantial titers against *E. coli* 083 but not against *E. coli* 075. (8 refs.)

*Children's Hospital
219 Bryant Street
Buffalo, New York 14222

2006 **MURRAY, HENRY W.; & SNYDER, HARVEY A.** Unusual pleocytosis in aseptic meningitis. *New England Journal of Medicine*, 297(12):668, 1977. (Letter)

A case is presented in which there was an unusual CSF pleocytosis in aseptic meningitis. The patient first presented with signs of meningeal irritation and a peripheral white cell count of 5400 with 65 percent neutrophils, 18 percent lymphocytes, 11 percent monocytes, and 6 percent atypical lymphocytes. Lumbar puncture demonstrated clear CSF with 10 leukocytes, of which 76 percent were mononuclear cells. Initial impression was aseptic meningitis, and no therapy was given. Symptoms worsened in 12 hours, and repeat lumbar puncture demonstrated 94 percent polymorphonuclear cells. Because of this change, high dose parenteral penicillin was begun. A third lumbar puncture 12 hours later revealed 70 percent mononuclear cells. Penicillin was discontinued on the 5th day after CSF cultures and other studies were all negative. It is concluded that when faced with a patient with a diagnosis of nonbacterial aseptic meningitis, it might be reasonable not to repeat a lumbar puncture unless clinical developments make this potentially misleading procedure necessary. (2 refs.)

New York Hospital
New York, New York 10021

2007 **WRIGHT, PETER F.; HATCH, MILFORD H.; KASSELBERG, ALFRED G.; LOWRY, SANDRA P.; WADLINGTON, WILLIAM B.; & KARZON, DAVID T.** Vaccine-associated poliomyelitis in a child with sex-linked agammaglobulinemia. *Journal of Pediatrics*, 91(3):408-412, 1977.

A 6-month-old boy with a sex-linked defect in immunoglobulin synthesis developed paralytic poliomyelitis following administration of oral, live polio vaccine. Although the neurologic illness seen in this infant was not typical of classic acute paralytic poliomyelitis, the prolonged intubation period, severity and chronicity of disease, and recovery of poliovirus over a period of several months were characteristic of poliomyelitis in the immunodeficient host. Since the illness occurred during the seasonal ebb of enterovirus transmission, no poliovirus or isolation or increase in serum antibody to poliovirus was found in 9 family members, and the viruses isolated from the patient had in vitro genetic markers suggestive of vaccine origin, the illness is believed to be secondary to administration of the vaccine. The presence of familial gammaglobulin deficiency but absence of defect in cell-mediated immunity in this child suggests an increased risk of this form of poliomyelitis in all immunodeficient patients receiving live poliovaccine. (21 refs.)

Department of Pediatrics
Vanderbilt University
Nashville, Tennessee 37240

2008 **PEGELOW, CHARLES; GOLDBERG, RONALD; TURKEL, SUSAN; & POWARS, DARLEEN.** Severe coagulation abnormalities in Reye syndrome. *Journal of Pediatrics*, 91(3):413-416, 1977.

Coagulation studies performed on 13 children with clinical diagnosis of Reye's syndrome revealed evidence of severely disordered hemostasis in 4 patients. These abnormalities necessitated transfusion of coagulation factors and platelets prior to percutaneous liver biopsy. One patient had generalized decreased coagulation factors suggestive of acute hepatic failure, and 2 patients had disseminated intravascular coagulation (DIC). The fourth patient had generalized hemostatic abnormalities suggestive of DIC, but a negative protamine test and a normal factor VIII level. Although the coagulation defect associated with Reye's syndrome is most often due to decreased production of all coagulation factors but VIII, these patients demonstrate that factor consumption can also occur. The severity of the coagulopathies found indicates that bleeding can become a major complication in diagnosis and management of Reye's syndrome. (15 refs.)

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2009 **HARPER, RITA G.; SOLISH, GEORGE; FEINGOLD, ELLEN; GERSTEN-WOOLF, NAOLA B.; & SOKAL, MYRON M.** Maternal ingested methadone, body fluid methadone, and the neonatal withdrawal syndrome. *American Journal of Obstetrics and Gynecology*, 129(4):417-424, 1977.

Infants born to 22 mothers maintained on methadone during pregnancy showed withdrawal symptoms at birth. The severity of neonatal withdrawal, but not the time of onset, was positively correlated with the total amount of methadone ingested by the mother during the last 12 weeks of pregnancy, the maternal dose of methadone at delivery, and the intrapartum serum methadone level. When the maternal daily dose of methadone at delivery was 30mg or greater, the infant had a moderate, serious, or severe clinical course. Cord blood levels of methadone were consistently lower than maternal serum levels, while amniotic fluid methadone levels were not consistently related to maternal or neonatal serum methadone levels. (16 refs.)

North Shore University Hospital
300 Community Drive
Manhasset, New York 11030

2010 **RAUH, JOSEPH L.; BROOKMAN, RICHARD R.; & SCHIFF, GILBERT M.** Genital viral surveillance among sexually active adolescent girls. *Journal of Pediatrics*, 90(5):844-845, 1977. (Letter)

Sexually active girls attending the Cincinnati Adolescent Clinic were studied to determine whether the prevalence of genital viral infections is comparable to that of a venereal disease clinic. Results demonstrated that 1 patient had a labial lesion compatible with herpes virus infection

(HVS). None of the patients showed visual evidence of either *Molluscum contagiosum* or *Condylomata accuminata.* HSV or cytomegalovirus (CMV) was cultured from 5 patients. None of these patients had cytological evidence of viral infection on Pap smear. It is concluded that the prevalence of HSV and CMV in sexually active adolescent girls attending an adolescent clinic is slightly lower but comparable to the prevalence reported in venereal disease clinic populations. Patients with HSV and CMV should be counseled during pregnancy about the risks of neonatal infection and should have repeat viral cultures at the time of delivery. (4 refs.)

Adolescent Clinic
Pavillion Building
Elland Avenue
Cincinnati, Ohio 45229

2011 **TEPPERBERG, JEROME; NUSSBAUM, ELIEZER; & *FELDMAN, FELIX.** Cortical blindness following meningitis due to *Hemophilus influenzae* type B. *Journal of Pediatrics*, 91(3):434-436, 1977.

An 11-month-old girl and a 3-year-old boy with ampicillin-sensitive *Haemophilus influenzae* type B meningitis developed transient cortical blindness without other neurologic signs. Clinical features included amaurosis, intact pupillary reaction to light, and normal ocular motility. Nuclear brain scans showed large bioccipital uptake, which subsequently regressed or cleared completely as vision improved. EEGs were normal in both patients. An electroretinogram performed on the boy was normal, but visual evoked responses (VERs) were diminished. As vision returned, the VERs returned to a slightly more normal amplitude and wave pattern. The transiently abnormal brain scans, normal EEGs, improved VERs, and improving vision in these patients suggest the possibility of occlusive vasospasm resulting from the involvement of blood vessels as they traversed the inflamed meninges. (8 refs.)

*Department of Pediatrics
Maimonides Medical Center
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2012 **WYATT, RICHARD A.; YOUNOSZAI, KABIR; ANURAS, SINN; & *MYERS, MARTIN G.** *Campylobacter fetus* septicemia and hepatitis in a child with agammaglobulinemia. *Journal of Pediatrics*, 91(3):441-442, 1977.

A child with congenital agammaglobulinemia developed *Campylobacter fetus* septicemia with hepatitis pathologically resembling that described in late-gestation infected calves. Percutaneous needle biopsy of the liver revealed necrosis, Kupffer cell hypertrophy, and reticuloendothelia hyperplasia. After 6 weeks of ampicillin therapy, hepatic parenchymal healing was apparent. At follow-up 2 years later, there was no evidence of progressive liver disease, and growth and development were normal. The similarity of the histologic changes in this patient to those of calves infected in late gestation suggests that humoral immunity may also be an important defense mechanism against systemic infection with *Campylobacter fetus* in human beings. (9 refs.)

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2013 **TYRALA, EILEEN E.; HILLMAN, LAURA S.; HILLMAN, RICHARD E.; & *DODSON, W. EDWIN.** Clinical pharmacology of hexachlorophene in newborn infants. *Journal of Pediatrics*, 91(3):481-486, 1977.

During 2 major staphylococcal epidemics in a neonatal intensive care unit, 54 infants were bathed with soap containing hexachlorophene. Elevated hexachlorophene concentrations were significantly correlated with birth weights of less than 1200g, postconception age of less than 35 weeks, and large areas of abraded skin. The half-life of hexachlorophene ranged from 6.1 to 44.2 hours and appeared to follow first-order kinetics. Peak blood concentrations of hexachlorophene occurred from 6 to 10 hours after baths. A concentration of 4350ng/ml and clinical symptoms consistent with hexachlorophene toxicity were observed after 7 baths in an infant with liver disease. When hexachlorophene bathing is instituted to control staphylococcal outbreaks, exposure should be limited to one or 2 baths. (32 refs.)

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St. Louis Children's Hospital
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2014 **MACE, JOHN W.; JANIK, D. SCOTT; SAUER, RONALD L.; & QUILLIGAN, J. J., JR.** Penicillin-resistant pneumococcal meningitis in an immunocompromised infant. *Journal of Pediatrics*, 91(3):506-507, 1977. (Letter)

An infant with hypergammaglobulinemia, leukocytosis, and an increased number of null cells developed meningitis due to *Streptococcus pneumoniae*. Slow clinical improvement was observed in response to therapy with sodium penicillin G until the sixth hospital day, when nuchal rigidity returned. Anderson's tube dilution sensitivities of the pneumococcus grown from blood and cerebrospinal fluid obtained during this relapse revealed a minimal inhibitory concentration and minimal bactericidal concentration of sodium penicillin G of 0.39μ/ml. This represents about a 15-fold increase in resistance as reported in the literature. Penicillin resistance was reconfirmed by 2 independent laboratories, and resistance to methicillin was also noted. (5 refs.)

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2015 ***GARTSIDE, P. S.; PANKE, R. K.; **LANDRIGAN, PHILIP J.; & BAKER, EDWARD L., JR.** A note concerning the papers of Landrigan and associates. *Journal of Pediatrics*, 91(3):514-515, 1977. (Letters)

Gartside notes that in a report of increased lead absorption with anemia and slowed nerve conduction in children near a lead smelter, significant concomitant variables including age, sex, socioeconomic status, location of residence, occupational status of the father, and pica habit may not have been properly taken into account. Landrigan and Baker reply that however one views the information on nerve conduction velocity, it is important to recognize that it constitutes only a fraction of the total data set collected on children living near the smelter. The most important finding was that 99 percent of 1- to 9-year-old children living within one mile of the smelter had blood levels greater than or equal to 40μg/dl. Twenty-two percent of these children had levels greater than or equal to 80μg/dl and required chelation. Children with elevated lead levels had significantly greater prevalence of anemia than children with normal lead levels. (3 refs.)

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**Bureau of Epidemiology
Center for Disease Control
Atlanta, Georgia 30333

2016 **BORTOLUSSI, ROBERT A.; BJORKSTEN, BENGT; & QUIE, PAUL G.** On the accuracy of identification of K1 *E. coli*. *Journal of Pediatrics*, 92(3):517, 1977. (Letter)

In a recent report of the opsonic requirements of 28 strains of *E. coli*, 18 strains were identified as K1 *E. coli* on the basis of slide agglutination. Five of the strains identified as K1 antigen positive by slide agglutination have subsequently been found to be K1 antigen negative by the antiserum agrose method. There may be an association between inability to activate the alternative complement pathway and presence of K1 antigen. The relation of this to the newborn infant's unique susceptibility to *E. coli* with K1 antigen has not been determined. (4 refs.)

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2017 **EVANS-JONES, L. G.; WHITTLE, H. C.; ONYEWOTU, L. J. ELGER; & GREENWOOD, B. M.** Comparative study of group A and group C meningococcal infection. *Archives of Disease in Childhood*, 52(4):320-323, 1977.

Forty-two patients with group C meningococcal infection and 72 with group A infection were studied in Nigeria. Full laboratory investigations were carried out on all patients except 6 who were under one year of age. Acute meningococcemia was present in 14 patients, all of whom had group

C infection; 9 patients were hypotensive with peripheral circulatory collapse on admission and died within a few hours after admission. Except for a significantly higher incidence of arthritis and cutaneous vasculitis occurring on the fifth or sixth day of illness in patients with group C infection, clinical and laboratory findings were similar for the 2 groups. The overall mortality was 22 percent in patients with group C infection and 12 percent in patients with group A infection, but was 12 percent for both groups when patients with acute group C meningococcemia were excluded. Findings support observations in other countries that group C infection is more severe than group A infection. (13 refs.)

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2018 **THOMAIDIS, T.; ANASTASSEA-VLACHOU, K.; MANDALENAKI-LAMBROU, C.; THEODORIDIS, C.; & VRAHNOU, E.** Chronic lymphoglandular enlargement and toxoplasmosis in children. *Archives of Disease in Childhood*, 52(4):403-407, 1977.

The results of a study of the relationship of toxoplasmosis and chronic lymphadenopathy in 52 children in Greece are reported. Serum antibody against *Toxoplasma gondii* was measured simultaneously by direct agglutination and indirect immunofluorescent tests. Direct agglutination titers ranging from 64 to 4,096 were evident in 22 children; in 19 children agglutination titers were 16 or below, indicating a probable past infection; and 11 children were not considered, since the agglutination titer was 32. Direct agglutination titers were rarely raised in the control groups of children with acute suppurative lymphadenitis and in healthy children, adults, nurses, and physicians. Toxoplasmosis is a common cause of chronic glandular enlargement in Greek children, and the direct agglutination test is a simple and reliable means of diagnosis. (21 refs.)

Department of Paediatrics
'Aghia Sophia' Children's Hospital
Athens 608, Greece

2019 **SCRAGG, J. N.; & PROCTOR, E. M.** Tinidazole in treatment of amoebic liver abscess in children. *Archives of Disease in Childhood*, 52(5):408-410, 1977.

A study of the efficacy of tinidazole in the treatment of 25 African children (3 months to 6 years old) with amebic liver abscess is discussed. Eight Ss were undernourished, 6 were severely malnourished, 6 had frank kwashiorkor, and only 5 were well nourished. Tinidazole was given in a single daily dose for 5 days. Response to treatment was rapid, cure being obtained in 23 Ss. Surgical drainage was necessary in the remaining 2 cases, of whom one child survived and the other succumbed to complicating bronchopneumonia. The use of a single direct-acting amebicide in this condition in no way reduces the need for liver aspiration, which should be thorough and repeated when indicated to avoid relapse. (15 refs.)

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2020 **GRANSTROM, MARJA-LIISA; LEINIKKI, PAULI; SANTAVOURI, PIRKKO; & PETTAY, OSSI.** Perinatal cytomegalovirus infection in man. *Archives of Disease in Childhood*, 52(5):354-359, 1977.

A careful follow-up comparison was made between 48 infants with cytomegalovirus (CMV) infections and 91 noninfected infants, to determine whether perinatal infection as such may cause clinical signs or symptoms which might be recorded during the first year of life as acute late-developing infection or developmental disorder. Three congenitally infected infants and 6 who had acquired CMV infection after 6 months of age were included in the study. Ss received a complete clinical examination at the ages of 2, 4, 6, 8, and 12 months. Thirty-two percent of all infants and 38 percent of the children of seropositive mothers began to excrete CMV in their urine during the first year of life. Three infants with congenital infection began to excrete virus during the first days of life; at the age of 4 months 32 percent were excretors. Children of 23 mothers who had no CMV antibodies during pregnancy and the first year after delivery did not develop any type of CMV infection. The risk of CMV infection was not increased by fresh blood exchange transfusions. A

greater risk of acquiring perinatal CMV infection was found for first children, for children breast fed up to the age of 2 months, and for children with a low birthweight not due to prematurity. No symptoms or signs were apparent from perinatal CMV infection, nor did it show any effect on growth or on motor and psychosocial development during the first year of life. The hypothesis that the mother is the source of CMV infection is supported by the data. (23 refs.)

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2021 **WHITLEY, RICHARD J.; SOONG, SENG-JAW; DOLIN, RAPHAEL; GALASSO, GEORGE J.; CHIEN, LAWRENCE T.; ALFORD, CHARLES A.; & THE COLLABORATIVE STUDY GROUP.** Adenine arabinoside therapy of biopsy-proven herpes simplex encephalitis. *New England Journal of Medicine*, 297(6):289-294, 1977.

In a placebo-controlled study of adenine arabinoside in the treatment of herpes simplex encephalitis, 28 cases were proven by isolation of type 1 herpes simplex from brain biopsy specimens. Treatment reduced mortality from 70 percent to 28 percent, and more than 50 percent of the treated patients who survived had no or only moderately debilitating neurological deficits. There was no obvious drug toxicity. The drug must be administered early in the course of infection, before coma is apparent. Brain biopsy should be performed for specific diagnosis to avoid unnecessary treament of nonresponsive encephalitides with similar clinical presentation. The daily dose of adenine arabinoside should not be increased because of the relative fluid-overflow problem and the fact that higher doses can depress bone-marrow function. (34 refs.)

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2022 **PRICE, D. A.; POSTLETHWAITE, R. J.; & LONGSON, M.** Influenzavirus A_2 infections presenting with febrile convulsions and gastrointestinal symptoms in young children. *Clinical Pediatrics*, 15(4):361-367, 1976.

The clinical features of influenzavirus A_2 infections in 75 young children admitted to a children's hospital with febrile convulsions, vomiting, coughing, diarrhea, and anorexia are described. Patients of any age may present with respiratory tract symptoms. Young babies often present with gastrointestinal symptoms, and children aged 1 to 3 years, with febrile convulsions. The adult pattern may be seen in older children. Findings indicate that encephalitis in association with influenza may be due to direct invasion of the central nervous system by the virus. (14 refs.)

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2023 **LAUWERYS, R.; HUBERMONT, G.; BUCHET, J. P.; & ROELS, H.** Domestic water and lead exposure during pregnancy. *Lancet*, 2(8049):1188, 1977. (Letter)

A study of the consumption of lead-contaminated drinking water and fetal exposure to lead *in utero* revealed the need for pregnant women to avoid lead contamination. A random sample of 70 pregnant women in a maternity home in rural Belgium where some houses have high levels of water lead was divided into group A having water lead concentrations below the WHO standard of 50μg/l and group B with lead concentrations above this standard but below 600μg/l. Significant group differences were found. Highly significant curvilinear correlations between drinking-water lead and lead concentrations in maternal and cord blood and in placenta were found. Water lead contributed to 14 percent, 18 percent, and 7 percent of the total variance of the lead concentration in maternal blood, cord blood, and placenta, respectively. An increment of water lead concentration from 50 to 500μg/l increased the blood-lead in mother and newborn by about 3μg/l and in placenta by about 25ng/g (wet weight). Results confirm the rapid transfer of lead from mother to fetus but indicate that drinking water does not seem to contribute greatly to lead exposure. (4 refs.)

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2024 **SINGER, ALBERT; COOKE, IAN D.; & LACHMAN, E.** Cervical incompetence and premature delivery after bromocriptine therapy for infertility. *Lancet*, 2(8036):503, 1977. (Letter)

The authors found no association between hyperprolactinemia and cervical incompetence in contrast to the positive relation reported by Jurgensen and Taubert. Pregnancy wastage was not significantly increased following successful bromocriptine treatment for infertility in 27 hyperprolactinemic patients, with or without galactorrhea, and 16 patients with defective ovulation and normal prolactin concentrations. Neither treatment group showed an increased risk of cervical incompetence or premature delivery. Increased maternal age or other infertility factors might explain Jurgensen and Taubert's findings, as well as the increased risk of spontaneous abortion, ectopic pregnancy, or hydatidiform mole encountered with the use of clomiphene, another popular ovulation inducer. (4 refs.)

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MEDICAL ASPECTS — Etiologic Groupings
Hemolytic disorders

2025 **ZAINO, EDWARD C.** Iatrogenic β thalassemia. *Journal of the American Medical Association*, 238(4):342, 1977. (Editorial)

In view of the special attention being given to thalassemia in the United States, it is important to point out that the screening method relied upon by most laboratories to detect the disease, the measurement of an increased A_2 hemoglobin by cellulose acetate hemoglobin electrophoresis, is fraught with dangers of both false-positive and false-negative results and should not be the sole screening test. The A_2 hemoglobin content is small, normally less than 3 percent of the total hemoglobin. A substantial increase in A_2 hemoglobin is usually between 3.5 and 5.0 percent. While this is sufficient to indicate impaired β-chain synthesis and β-thalassemia, it is not present in a concentration high enough to be measured accurately by direct densitometry of the cellulose acetate electrophoretic strip, as has been shown in the screening of more than 400 people of different ages for thalassemia in a high-risk population. Electrophoresis errors were mostly false elevations that would have resulted in an iatrogenic thalassemia. Electronic blood count, A_2 hemoglobin by microcolumn, and hemoglobin electrophoresis are recommended for thalassemia screening. (2 refs.)

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2026 **VOGL, THOMAS P.; CHESKIN, HOWARD; BLUMENFIELD, THOMAS A.; SPECK, WILLIAM T.; & KOENIGSBERGER, M. RICHARD.** Effect of intermittent phototherapy on bilirubin dynamics in Gunn rats. *Pediatric Research*, 11(10):1063-1068, 1977.

An exponential decrease in serum bilirubin levels was found in groups of jaundiced (Gunn) rats exposed to various schedules of blue light. A logarithmic dose-response curve was obtained with a 50 percent light dose exhibiting 75 percent efficacy and a 25 percent light dose exhibiting 59 percent efficacy compared to continuous phototherapy. The time constants of the decrease in serum bilirubin concentration also vary logarithmically with dose and double between continuous light and 25 percent light at constant irradiance. In

view of the concern which has been expressed over the potential long-term side effects of phototherapy in neonates, the present study suggests that intermittent phototherapy, with a light cycle of approximately 30-60 minutes duration, and a concomitant dosage decrease of 50-75 percent may effectively control neonatal hyperbilirubinemia. (15 refs.)

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2027 Hyperbilirubinemia therapy also undergoing scrutiny. *Journal of the American Medical Association*, 238(11):1120, 1977.

Although the efficacy of phototherapy in preventing hyperbilirubinemia in premature infants has been clearly demonstrated, no large-scale study has ever been done of its effectiveness for already jaundiced newborns. Also, little is known about the possibility of harm from photodegradation products. A large scale multi-institutional study was begun to examine these problems 2 years ago and will be completed soon.

2028 **CHECK, WILLIAM.** Recent findings aid in judging risk of damage from high bilirubin levels. *Journal of the American Medical Association*, 238(11):1119-1120, 1126, 1977.

New techniques for judging the risk of brain damage from high bilirubin (BL) levels are being formulated. Brain damage is related to 3 factors: degree of saturation of albumin with BL, amount of nonesterified fatty acid in the blood, and length of exposure to high serum levels of BL. Damage may be caused by serum unconjugated BL of 12mg/dl, with the incidence of problems increasing greatly above the level of 15mg/dl. Since 3 percent of all term infants are born with unconjugated levels of 15mg/dl or greater, a precise identification is necessary. Two groups that determined total BL and albumin saturation on groups of infants, and 5 years later performed psychometric tests to detect cognitive dysfunction, found that such dysfunction did not correlate with absolute BL but correlated strongly with the degree of albumin saturation. Similarly high levels of nonesterified fatty acids, which compete with BL for albumin binding sites, increase a child's risk of dysfunction. The duration of the raised saturation index is also a factor. A new instrument, the hematofluorometer, which quantitates albumin-bound BL by its characteristic fluorescence, indicates when blood BL is in excess of albumin-bound BL, and measures reserve binding capacity, is currently being tested for clinical use.

2029 **SEGNI, G.; POLIDORI, G.; & ROMANGNOLI, C.** Bucolome in prevention of hyperbilirubinaemia in preterm infants. *Archives of Disease in Childhood*, 52(7):549-550, 1977.

Serum bilirubin levels were lower from day 4 on in 25 preterm babies given oral bucolome (30mg/kg/day for 5 days) than in a control group. Three of the 25 control infants had serum bilirubin levels greater than 18mg/100ml and required exchange transfusion. None of the 25 treated infants had bilirubin levels greater than 18mg/100ml. The drug did not affect sucking responses, cause apneic spells, or produce drowsiness. Ten of the treated infants did show a tendency to vomit some time after drug administration but weight gains were unaffected. (8 refs.)

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2030 **WHICHER, HEATHER.** Negligence in a case of neonatal jaundice. *Lancet*, 1(8015):815, 1977.

A lawsuit for negligence was brought in a case involving a healthy boy born on October 30, 1970, whose mother noticed signs of jaundice the following day. Nurses reassured the mother that it was normal physiological jaundice and would disappear in a few days. But the infant became obviously ill on November 3, and doctors ordered a serum-bilirubin test, which registered 30.5mg/dl (518.5μmol/1). The baby was transferred to another hospital for exchange transfusion, but had already suffered kernicterus and athetoid cerebral palsy, so that he had no control over his body and would be confined to a hospital for the rest of his life (expectancy of 10 to 20 years). His mother

sued the board of the first hospital for damages. Defendants were found negligent, since a serum-bilirubin test done on November 2 probably would have prevented the development of kernicterus. The court ruled that although no sum would be awarded for pain, suffering, or future loss of earnings, the baby should receive £16,000 for almost total loss of amenity, and the mother should receive £2250 in damages.

2031 **GREEN, P. J.** Folate deficiency and intravenous nutrition. *Lancet*, 1(8015):814, 1977. (Letter)

Two cases of acute folate deficiency in patients on intravenous nutrition in which jaundice was a striking feature are described. Calcium folinate 9mg i.v. was given daily to a 14-year-old boy with spina bifida who developed prolonged paralytic ileus after operation for a perforated appendix and a 74-year-old woman with a benign esophageal stricture who developed gastrostomy and severe diarrhea after surgery. Both survived the jaundice, although the woman succumbed to a fatal gram-negative septicemia much later. Presumptive diagnosis was acute folate deficiency in both cases. Thrombocytopenia was investigated in both as a sign of disseminated intravascular coagulation, with negative results before the true diagnosis was made. Folate supplements should normally be given whenever intravenous alimentation lasts more than a very few days. The diagnosis of acute folate deficiency in the postoperative patient on i.v. feeding is important because the condition is potentially lethal.

2032 **RISEMBERG, H. M.; MAZZI, E.; MACDONALD, M. G.; PERALTA, M.; & HELDRICH, FREDERICK.** Correlation of cord bilirubin levels with hyperbilirubinaemia in ABO incompatibility. *Archives of Disease in Childhood*, 52(3):219-222, 1977.

The reliability of cord bilirubin levels in predicting the severity of hyperbilirubinemia in ABO incompatibility was tested with 91 offspring of ABO incompatible pregnancies and 30 controls resulting from O-O pregnancies. Bilirubin level, blood group, and direct Coombs's test were carried out on cord blood samples at 12, 24, 36, and 48 hours of life. Thirteen Ss (14 percent) developed severe hyperbilirubinemia at 12-36 hours of life and, with the exception of one patient, cord bilirubin levels were greater than 4mg/100ml (68μmol/l). All of these patients required exchange transfusion. It is concluded that newborns of heterospecific pregnancies, with cord bilirubin levels greater than 4mg should be placed in a special "high risk" category and should be admitted to a centre where frequent re-evaluation and appropriate therapy are available. (14 refs.)

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2033 **MCGUINNESS, E.P.J.; & REEN, D. J.** Plasma exchange in severe rhesus disease. *British Medical Journal*, 1(6074):1469, 1977. (Letter)

The use of continuous flow plasmapheresis in the management of severe Rh hemolytic disease is discussed. A case is described in which plasma exchange was used as an alternative to fetal intrauterine transfusion. Treatment was started at 8 weeks gestation and a total 237 liters of plasma was exchanged in 79 procedures. Initial amniocentesis at 18 weeks demonstrated a moderately severely affected fetus, but 6 subsequent amniocenteses demonstrated no further deterioration in condition. A live male infant was delivered by cesarean section because of fetal distress, with a plasma bilirubin of only 2mgs/dl. It is concluded that plasma exchange of the mother's blood provides an excellent alternative to intrauterine transfusion in this disease. (3 refs.)

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2034 **SCHEIDT, PETER C.; MELLITS, E. DAVID; HARDY, JANET B.; *DRAGE, JOSEPH S.; & BOGGS, THOMAS R.** Toxicity to bilirubin in neonates: infant development during first year in relation to maximum neonatal serum bilirubin concentration. *Journal of Pediatrics*, 91(2):292-297, 1977.

The relationship between maximum neonatal serum bilirubin levels and neurologic and develop-

mental performance in the first year of life was examined in 27,000 infants. Neonatal hyperbilirubinemia was associated with impaired motor performance at 8 and 12 months of age. This association, which is independent of socioeconomic status, begins with maximum neonatal serum bilirubin concentrations in the range of 10 to 14mg/dl and extends to levels of 20mg/dl and above. Although the relationship was strongest for low birth weight/short gestational period infants, a persistent association of developmental outcome with hyperbilirubinemia was found over and above the variation of maturity within birth weight and gestational age groups. (9 refs.)

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2035 **TOWERS, S. H.; & MCMULLIN, G. P.** Controlled trial of antenatal barbiturates in rhesus haemolytic disease. *Archives of Disease in Childhood* 52(4):324-325, 1977.

A small controlled trial to test the value of sodium amytal given antenatally to infants affected by rhesus hemolytic disease is described. Ss were all mothers attending the West Chesire Maternity Wing who were thought to be carrying a child at risk from rhesus hemolytic disease; mothers were randomly allotted to a treatment or control group, except that a mother known to have had barbiturates during the current pregnancy was allotted to the treatment group. Ss in the treatment group received sodium amytal 100mg for 7 days before delivery, while placebo tablets were given to Ss in the control group. The drug was given antenatally to infants with rhesus incompatibility. Results showed no significant difference between 2 groups in their cord blood bilirubin levels or the number of exchange transfusions required by defined criteria. It is concluded that antenatal sodium amytal, as used in this trial, is of no value in the management of rhesus hemolytic disease of the newborn. (7 refs.)

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2036 **CASHORE, WILLIAM J.; HORWICH, ARTHUR; KOROTKIN, EDWARD H.; & OH, WILLIAM.** Influence of gestational age and clinical status on bilirubin-binding capacity in newborn infants. *American Journal of Diseases of Children*, 131(8):898-901, 1977.

An increased risk for low-bilirubin kernicterus exists among immature infants, with some critically ill term infants at risk if serum bilirubin levels are below 20mg/100ml. Findings were the result of the measurement of total bilirubin-binding capacity by Sephadex G-25 gel filtration in 43 clinically well and 45 clinically ill newborn infants between 26 and 41 weeks gestation. In the well patients, bilirubin-binding capacity, serum albumin concentration, and the molar-binding ratio of bilirubin to albumin were directly related to gestational age. In the sick patients, serum bilirubin-binding capacity and albumin concentration also correlated with gestational age; however, from 32 to 41 weeks' gestation, the mean values for the sick infants were significantly lower than for the well infants. In the sick infants, the molar binding ratio of bilirubin to albumin was also lower than in the well patients and did not correlate with gestational age. Because unknown factors play an important role in decreasing the bilirubin-to-albumin molar binding ratio of sick patients, future longitudinal studies are indicated to elucidate further the interrelationship between clinical status, serum bilirubin-binding capacity, and lethal or nonlethal bilirubin encephalopathy in term ill infants. (19 refs.) (Author abstract modified)

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2037 **BOWMAN, J. M.** Intrauterine fetal transfusion. *British Medical Journal*, 1(6074):1469, 1977. (Letter)

The author's experience with intrauterine fetal transfusions in severe Rh hemolytic disease is reported. Survival rates observed after intrauterine transfusions were much better than other reported figures. Early initial fetal transfusion carried a very real chance of fetal survival when carried out as early as 21.5 to 23 weeks gestation. Survival rates over 11.5 years were: 69 percent (of 110 fetuses) when transfusion was initiated after 26 weeks; 67 percent (of 52) when initated

between 24 and 26 weeks; and 42 percent (of 26) between 21.5 and 23 weeks. Although the last figure seems low, it represents 11 babies who survived because of the procedure. In a single experience with plasmapheresis, the procedure did not obviate the need for additional intrauterine transfusions. Intrauterine transfusions are the most important factor in the reduction of perinatal mortality from Rh isoimmunization from 14.3 percent to 1.5 percent in the past decade. (2 refs.)

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2038 SCHIKLER, KENNETH N.; COHEN, MICHAEL I.; & MCNAMARA, HELEN. Oxytocin administration. *American Journal of Diseases of Children*, 130(12):1377, 1976. (Letter)

Results of an *in vitro* study showed no significant degree of inhibition of bilirubin glucuronyl transferase activity on the addition of various dilutions of 0.2ml of a 10 units/ml solution of oxytocin to the reaction mixture. This suggests that maternal oxytocin administration does not interfere with neonatal bilirubin conjugation and does not cause neonatal unconjugated hyperbilirubinemia, although this has not been proven *in vivo*. (4 refs.)

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2039 KARPATHIOS, THEMISTOCLES; NICOLAIDOU, POLYXENI; KORKAS, ANASTASIOS; & THOMAIDIS, THEODORE. The hand-foot syndrome in sickle cell β-thalassemia disease. *Journal of the American Medical Association*, 238(14):1540-1541, 1977.

A case report is presented of an 11-month-old boy with hand-foot syndrome, with swelling only of the hands, in sickle cell β-thalassemia disease (S/thal) A type. The patient was from Trikala in Thessaly, a region of Greece with a high frequency of sickle cell and β-thalassemia traits. First clinical manifestations upon admission to the hospital were pallor, fever, and spectacular edema of both hands. Eight days later, roentgenograms also showed several osteolytic lesions in the metacarpal and phalangeal bones. Swelling had completely disappeared by the 20th day, and roentgenograms taken of the hands one month after discharge showed definite regression of osteolytic lesions. In documented cases of the hand-foot syndrome in S/thal disease, etiology has been attributed to predominance of the S gene over the thalassemia gene during the interaction, so that the double heterozygote is sickle cell in nature. Both the infants concerned were of the non-A-type, rendering our patient unique because he is of the A type. Although this case suggests that the hand-foot syndrome can occur in any electrophoretic type of S/thal disease, fraction-type could play a role in the frequency of its appearance. (3 refs.)

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2040 HOWARD, EDWARD R.; & *MOWAT, ALEX P. Extrahepatic biliary atresia. Recent developments in management. *Archives of Disease in Childhood*, 52(11):825-827, 1977.

The introduction of portoenterostomy has clearly increased the chance of long-term survival in infants with extensive destruction of the extrahepatic bile ducts (extrahepatic biliary atresia) but this is still only achieved in a minority of patients. Chances of apparent cure are considerably greater when performed before 60 days of age. One series reported a success rate of 80 percent when carried out before 60 days of age while bile drainage developed in only 20 percent of those operated on after 90 days of age. The histological changes in the extrahepatic bile ducts just below the portahepatis have been classified into 3 types and have been used as an indication of operative success. Bile drainage after portoenterostomy was 40 percent in cases with type 1 histology, 60 percent in cases of type 2, and 80 percent in cases of type 3, in one reported series. Three complications commonly occur after portoenterostomy: recurrent cholangitis, increased intrahepatic fibrosis, and portal hypertension. Liver cell carcinoma has also been described. Despite these complications, long term survivals of more than 5 years are now being achieved. A detailed description and a limited

review of extrahepatic biliary atresia are provided. (26 refs.)

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2041 **SOLTESZ, GYULA; SCHULTZ, KAROLY; MESTYAN, JULIUS; & HORVATH, IMRE.** Blood glucose and plasma amino acid concentrations in infants of diabetic mothers. *Pediatrics*, 61(1):77-82, 1978.

Newborns of diabetic mothers may have profound, though often asymptomatic, hypoglycemia immediately after birth. Since the most important precursors for de novo synthesis of glucose are amino acids, and characteristic plasma levels of glucogenic amino acids have been found in 2 clinically important hypoglycemic states, postnatal blood glucose and individual plasma free amino acid levels were measured in 14 newborn infants. No significant correlation was observed between the blood glucose levels and any of the amino acids determined, although all the infants of diabetic mothers had significantly lower blood glucose concentrations. The total concentration of amino acids and the level of a few amino acids (glycine, alanine, taurine, and valine) were significantly elevated in full-term babies. Premature infants of either diabetic or control mothers had the same total amino acid plasma concentrations. However, premature infants of diabetic mothers had elevated levels of alanine, an indication that is usually associated with the deterioration of the infants' clinical condition (apneic spells, dyspnea, tachycardia). In this study, total plasma amino acid, alanine, and glycine levels were elevated in the asphyxiated babies, which might indicate that the postnatal hyperaminoacidemia observed in infants of diabetic mothers was due to birth asphyxia rather than to impaired gluconeogenesis. (20 refs.)

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2042 **VALAES, TIMOS; & HYTE, MARILYN.** Effect of exchange transfusion on bilirubin binding. *Pediatrics*, 59(6):881-887, 1977.

The lowest bilirubin concentration at which loosely bound bilirubin could be demonstrated by Sephadex gel filtration was determined in samples collected before, during, and on completion of 17 exchange transfusions, and in discarded and donor blood. Exchange transfusion did not affect the bilirubin titration point, expressed either as bilirubin concentration or as bilirubin/albumin molar ratio. Following exchange transfusion, the titration point was below the level that would be expected if the adult donor albumin retained its binding properties in the infant's circulation. The bilirubin titration point was also depressed in the discarded blood, in inverse proportion to the amount of bilirubin removed by exchange transfusion. The decreased binding of bilirubin in newborn, particularly preterm, infants is attributed to circulating substances interfering with binding, as no change in binding properties occurs following exchange transfusion. (21 refs.)

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2043 **JONES, ROBERT.** Fanconi anemia: simultaneous onset of symptoms in two siblings. *Journal of Pediatrics*, 88(1):152, 1976. (Letter)

Two siblings, a 5-year-old girl and her 3-year-old brother, simultaneously developed acute marrow failure 3 weeks after identical, presumably viral, infections. Both children presented with epistaxis, pallor, and lethargy. Examination revealed severe anemia, multiple bruising, short stature, hyperpigmentation, and short thumbs. Fanconi anemia was confirmed by the finding of a high concentration of fetal hemoglobin (12 percent) and characteristic changes of chromosomal analysis. The bone marrow was hypoplastic. The simultaneous onset of symptoms in these siblings raised the possibility that viruses may induce chromosomal damage in normal individuals which is similar to that seen in Fanconi anemia, and may be implicated in causing chromosomal breakage, together with the onset of marrow failure, in this condition. (4 refs.)

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2044 **JOHNSON, S. M.; NORTH, M. E.; ASHERSON, G. L.; ALLSOP, J.; WATTS, R.W.E.; & WEBSTER, A.D.B.** Lymphocyte purine 5'-nucleotidase deficiency in primary hypogammaglobulinaemia. *Lancet*, 1(8004):168-170, 1977.

The lymphocyte plasma membranes of 11 patients with nonfamilial adult onset variable primary hypogammaglobulinemia were examined. The plasma membrane-bound enzyme purine 5'-nucleotidase was measured, and its mean activity in the cells of the patients was significantly less than in the cells of normal controls ($p<0.001$). The findings suggest that 5'-nucleotidase activity is necessary for normal lymphocyte function. This may be related to its role in facilitating the transfer of newly-formed purines across cell membranes by converting them from nucleotides to nucleosides. The lymphocyte 5'-nucleotidase deficiency in these patients may be of primary importance in the etiology of their disease, or it could be secondary to some other metabolic defect or plasma membrane change. (15 refs.)

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2045 **GANDY, GILLIAN; & JACOBSON, W.** Influence of folic acid on birthweight and growth of the erythroblastic infant. I. Birthweight. *Archives of Disease in Childhood*, 52(1):1-6, 1977.

In an investigation of the role of folic acid as an essential growth factor, the inter-relationship between birth weight, maternal and fetal serum folate, and hemoglobin at birth in erythroblastotic infants was explored. Birthweights in 100 infants with erythroblastosis were found to average 227g less than the birthweights of 200 control infants, and the more severely affected infants tended to be in lower percentiles for weight than those less affected. Maternal and serum cord blood folate values were strongly correlated. Low maternal serum folate levels also correlated with the incidence of small-for-date babies among the affected infants. Results suggest that low birthweights may be due to a shortage of folic acid available for fetal growth. (15 refs.)

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2046 **GANDY, GILLIAN; & JACOBSON, W.** Influence of folic acid on birthweight and growth of the erythroblastic infant. II. Growth during the first year. *Archives of Disease in Childhood*, 52(1):7-15, 1977.

In an investigation of the growth rate of erythroblastotic infants during the first year of life, low serum folate and low rates of weight gain characterized the first year, especially from the 6th to 12th months. The average percentiles for weight rose during the first half of the year for 73 newborn erythroblastic (ER) infants, classified as mildly, moderately, or severely ER. However, during the second half of the year 35 of 55 infants fell into lower percentiles, including 17 who dropped below their birthweight percentiles. In the mildly affected group, the weight percentile increased from 50 to 75 during the first half of the year and then dropped to 65 during the latter half. In the moderately affected group, the weight percentile increased from 40 to 55 in the first half of the year but fell from 55 to 35 in the latter half. In the severely affected group, the weight percentile increased from 30 to 50 but dropped from 50 to 40 (median 25) in the latter half of the year. The serum folate levels in all 3 groups showed a similar decline, although at birth there were more infants with low serum folate levels in the severely affected group. By the end of the first year only 12 of the 39 infants had serum folate levels over 8microg/l, and 16 had levels below 5microg/l. Throughout the first year of life there was a strong correlation between serum folate of 8microg/l or more and rising weight percentiles, and 5microg/l or less and falling percentiles. (16 refs.)

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2047 **GANDY, GILLIAN; & JACOBSON, W.** Influence of folic acid on birthweight and growth of the erythroblastic infant. III. Effect of folic acid supplementation. *Archives of Disease in Childhood*, 52(1):16-21, 1977.

The beneficial effect on growth of folic acid given to an unselected group of infants with fetal erythroblastosis is delineated. Daily oral supplements of 2.5 or 5mg folic acid were given to 17 infants with severe (14) or moderately severe (3) erythroblastosis. In comparing their rate of weight

gain, expressed as weight percentiles, with a very similar group of 34 erythroblastic infants without folic acid treatment, it was found that the treated group had risen from the 40th to the 80th percentile by the end of the 4th month, while the untreated group had risen only from the 35th to the 50th percentile. Both groups declined in weight percentiles during the second half of the year, but the treated group ended up at the 50th percentile, while the untreated group was at the 25th percentile. Hemoglobin levels did not vary during the year or between the treated and untreated groups. (13 refs.)

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2048 MANNIELLO, ROBERT L.; ADAMS, ANTHONY J.; & FARRELL, PHILIP M. The influence of antenatal corticosteroids on hypoglycemia in newborn rats with intrauterine growth retardation. *Pediatric Research*, 11(7):840-844, 1977.

Prenatal injection of glucocorticoid into rats reduced the incidence of hypoglycemia in newborns with intrauterine growth retardation (IUGR) at 2-4 hours after birth. Of rat pups with IUGR not treated with glucocorticoid, 46 percent had hypoglycemia during the first 2 hours of neonatal life while only 18 percent of the control pups had hypoglycemia. During the 2-4 hour interval hypoglycemia remained about the same among the control pups and tapered off to 4 percent at 4-6 hours of age, while hypoglycemia in the IUGR pups increased to 91 percent at 2-4 hours at age. IUGR pups who received glucocorticoid prenatally attained mean plasma glucose values approximating those of normal untreated rat pups. Concentrations of plasma glucose at birth of individual control and IUGR progeny were found to correlate significantly with total liver glycogen content. Total hepatic glycogen stores in the fetally malnourished animals were markedly lower than those of controls. Liver glycogen content in the treated pups with IUGR also showed significantly higher values than the nontreated IUGR progeny. The administration of steroids may be an effective means of prenatal intervention in susceptible small-for-gestational-age fetuses. (40 refs.)

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2049 TILZ, G. P.; WEISS, P.A.M.; TEUBL, I.; LANZER, C.; & VOLLMANN, H. Successful plasma exchange in rhesus incompatibility. *Lancet*, 2(8030):203, 1977. (Letter)

A successful exchange plasmapheresis was performed on a 35-year-old Rh negative woman during the 35th-38th weeks of pregnancy. Although she had had 2 uneventful pregnancies, her third pregnancy ended in the 32nd week in a stillbirth caused by Rh incompatibility. (Her husband was Rh positive). At the 31st week her Rh titer was 1/256, amniocentesis showed a bilirubin of 186μg/dl, ultrasonography indicated a slight hydrops, amniotic fluid papain anti-D test was 1/1, and the baby was considered to be at high risk. Exchange plasmapheresis was performed during the 33rd week, and her Rh titer dropped from 1/128 to 1/64. When exchange plasmapheresis was performed again in the 38th week, Rh titer dropped from 1/256 to 1/32 and amniotic fluid bilirubin dropped from 120 to 52. The woman was delivered spontaneously of a healthy male baby, Rh positive, with a direct antiglobulin titer of 1/8. His serum bilirubin rose to 9mg/dl within 2 hours and he needed two exchange transfusions. Four days later phototherapy was stopped, the baby showing no abnormality. (8 refs.)

2050 *SHINE, IAN; & MUNRO, ALASTAIR J. Screening for thalassemia. *Lancet*, 2(8030):191-192, 1977. (Letters)

Various methods of screening for thalassemia, including coulter model S, computer linkage, and mathematical manipulation of red-blood-cell indices, are discussed. Rates of detection for the different methods are compared and examined for false-positive results. It is recommended that discrimination from anemia and microcytosis be considered in determining the most accurate detection method. (6 refs.)

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2051 *TIVO, PIER ANGELO; MINIERO, ROBERTO; PONZONE, ALBERTO; & **PARK, B. H. NBT test in thalassemia. *Journal of Pediatrics*, 90(4):666-667, 1977. (Letters)

The nitroblue tetrazolium (NBT) test was performed on 59 children with homozygous beta-thalassemia. Normal NBT test scores were found in 9 of 11 untreated patients, while treatment with transfusion or splenectomy was associated with an increased NBT score in approximately two-thirds of thalassemia patients who were apparently free of infection. Thalassemia itself may not always be associated with enhanced NBT dye reduction by neutrophils. Since an increased reduction of NBT dye by phagocytes appears to be related to a nonspecific *In vivo* phagocytic activity, it is possible that transfusion or splenectomy may have increased the *in vivo* phagocytic activity. (5 refs.)

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2052 DREW, JOHN H.; SMITH, MERRAN B.; & KITCHEN, WILLIAM H. Glucose-6-phosphate dehydrogenase deficiency in immigrant Greek infants. *Journal of Pediatrics*, 90(4):659-660, 1977. (Letter)

The incidence of glucose-6-phosphate dehydrogenase (G-6-PD) deficiency was evaluated in 876 Greek infants born in Melbourne, Australia. Serum bilirubin levels of 12mg/dl or greater at 48 or 72 hours of age were observed in 7 of 20 male infants hemizygous for G-6-PD, indicating an increased frequency of mild to moderate neonatal jaundice in this population. Only one of these infants required phototherapy, and none required exchange transfusion. A retrospective study of 71 additional Green infants who required treatment for jaundice revealed only 2 cases of G-6-PD deficiency. Together these studies suggest that G-6-PD deficiency is not an important factor in severe neonatal jaundice in Greek infants in Melbourne. Factors causing the unusual frequency and severity of neonatal jaundice in Greece may be environmental rather than genetic. (4 refs.)

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2053 SHANKARAN, SEETHA; & POLAND, RONALD L. The displacement of bilirubin from albumin by furosemide. *Journal of Pediatrics*, 90(4):642-646, 1977.

The effect of furosemide, a sulfonamide diuretic, on the bilirubin-binding capacity of albumin was compared to that of sulfisoxazole, a known potent displacer of bilirubin, to assess the risk of administering furosemide to jaundiced infants. Using a whole blood fractionation technique, furosemide was found to displace bilirubin from albumin to red cells and globulins to almost the same degree as sulfisoxazole did. In the hydroxybenzeneazobenzoic acid dye binding test, the mean dye binding capacity of the sera of 8 jaundiced newborn infants was significantly reduced by addition of furosemide or sulfisoxazole. Administration of furosemide (5mg/kg) or sulfisoxazole (50mg/kg) to adult Gunn rats resulted in a significant fall in mean serum bilirubin concentration compared to saline controls. Furosemide, like sulfisoxazole, is a potent displacer of bilirubin and may therefore increase the incidence of neurotoxicity in cases of neonatal jaundice. (21 refs.)

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2054 WENNBERG, RICHARD P.; RASMUSSEN, L. FRASER; & AHLFORS, CHARLES E. Displacement of bilirubin from human albumin by three diuretics. *Journal of Pediatrics*, 90(4):647-650, 1977.

The interaction of furosemide, ethacrynic acid, and chlorothiazide with bilirubin-albumin binding complexes was studied, and the effects of the 3 diuretics were compared with that of sulfisoxa-

zole, a known binding competitor. Peroxidase assay, erythrocyte uptake, and sephadex gel filtration binding tests indicate that all 3 diuretics are potent bilirubin displacers, with bilirubin-displacing capacities similar to that of sulfisoxazole. When used at the recommended dosage of 1mg/kg, furosemide and ethacrynic acid would probably not produce a significant increase in free bilirubin in most infants. Chlorothiazide could introduce significant risk to jaundiced infants, however, because of the higher dosage required (15 to 20mg/kg). (8 refs.)

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2055 GARTNER, LAWRENCE M.; LEE, KWANG-SUN; VAISMAN, SERGIO; LANE, DONNA; & ZARAFU, ILANA. Development of bilirubin transport and metabolism in the newborn rhesus monkey. *Journal of Pediatrics*, 90(4):513-531, 1977.

Results of observations of the maturation of hepatic bilirubin load, uptake, conjugation, and excretion in normal newborn rhesus monkeys from 4 hours to 19 days old are reported, along with the relative effects of phenobarbital on these processes, to illuminate the functional basis of physiologic jaundice of the newborn and the effects of prenatal and neonatal phenobarbital. Newborn rhesus monkeys untreated with phenobarbital manifested a 2-phase pattern of physiologic unconjugated hyperbilirubinemia. During phase 1 serum bilirubin rapidly increased to 4.5mg/dl by 19 hours, declining equally rapidly to 1.0mg/dl by 48 hours. Phase 2 consisted of a stable bilirubin elevation at 1.0mg/dl from 48 to 96 hours of age, followed by a decline to normal adult concentrations. Twenty-nine normal term newborn infants exhibited the same pattern, each phase lasting 3 times longer in the human than in the monkey infant. Phase 1 in the monkey was completely eliminated by administration of phenobarbital to the mother before birth and to the newborn infant, resulting in a 3-fold enhancement of hepatic conjugation of bilirubin without affecting the bilirubin load. In control newborns the bilirubin load slightly exceeded hepatic bilirubin conjugating capacity; in newborn monkeys treated with phenobarbital, hepatic conjugating capacity slightly exceeded that required for the bilirubin load. Phenobarbital failed to alter the second phase of hyperbilirubinemia and did not increase either maximal hepatic uptake or bilirubin excretion. Premature birth retarded maturation of hepatic glucuronyl transferase activity, limiting hepatic conjugation of bilirubin. (47 refs.)

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2056 STOCKMANN, R.; SIDIROPOULIS, D.; & VON MURALT, G. Perinatal influence on the hyperbilirubinemia of the newborn infant. *Journal of Pediatrics*, 90(5):858-859, 1977. (Letter)

A study on 3,129 newborn infants demonstrated a significant relationship between neonatal jaundice in 220 children after administration of oxytocin to the mother as compared to 2,631 children without jaundice of whom only 483 mothers had received oxytocin. The incidence was correlated with the increasing dose of oxytocin. This was more pronounced in the preterm than in the term infants. In addition, sodium benzoate levels were evaluated in the cord blood serum of newborn infants whose mothers received therapeutic doses of diazepam intramuscularly during labor. Blood levels varied from 0.2 to 0.5μg/ml. In the control group, traces of sodium benzoate were found in all patients even though none of these patients had received injections of diazepam. (4 refs.)

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2057 LEVINE, RODNEY L. Perinatal influence on the hyperbilirubinemia of the newborn infant. *Journal of Pediatrics*, 90(5):859-860, 1977. (Letter)

It is noted that serum bilirubin concentrations in infants cannot be used alone to evaluate the effects of drugs or to assess the risk of kernicterus. It is important to assess the capacity of the albumin to bind bilirubin and the affinity of that binding. A decrease in either can increase the concentration of unbound diffusable bilirubin and increase the risk of kernicterus. Two methods are

known which permit the quantification of the capacity and affinity of binding in the neonate's serum. Rational clinical management of hyperbilirubinemia could be assisted greatly by these determinations. (6 refs.)

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2058 **KIRKMAN, HENRY N., JR.** Further evidence for a racial difference in frequency of ABO hemolytic disease. *Journal of Pediatrics*, 90(5):717-721, 1977.

Race as a factor in anticipating ABO hemolytic disease in the newborn was investigated. Patients analyzed included 2,428 consecutive newborn infants who were Rh compatible with their mothers and who weighed over 2.5kgs. Results were analyzed for Coombs test, age of onset of jaundice, and values of maximum indirect serum bilirubin concentration. The incidence of ABO hemolytic disease was estimated by substracting the frequency of each of these observations in ABO compatible infants from the frequency of compatible infants. This controlled for the contribution of extraneous causes for jaundice and a positive Coombs test. These signs of hemolytic disease were found more often in ABO incompatible infants than in the compatible group. Independently of whether detected by a positive Coombs test, jaundice in the first 24 hrs of life, or serum bilirubin concentrations of over 10mgs/dl, the incidence of ABO disease was much higher in black newborns than whites. Findings indicate that early discharge of newborn infants from the hospital should not be authorized without specific assessments, particularly if the infant has ABO disease and is black. (13 refs.)

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2059 **JAVITT, NORMAN B.; KEATING, JAMES P.; GRANT, RICHARD J.; & HARRIS, RUTH C.** Serum bile acid patterns in neonatal hepatitis and extrahepatic biliary atresia. *Journal of Pediatrics*, 90(5):736-739, 1977.

Serum bile acid patterns were determined in 31 infants who were subsequently diagnosed to have either neonatal hepatitis or extrahepatic biliary atresia. Fifteen infants with extrahepatic biliary atresia had a mean serum bile acid concentration of 90μgs/ml with a standard deviation of 47. Sixteen infants with neonatal hepatitis had a mean serum concentration of 60μgs/ml with a standard deviation of 35. The chenodeoxycholate/cholate ratio was greater than 1 in 13 infants (87 percent) with atresia and in 10 infants (66 percent) with neonatal hepatitis. Other than a higher total concentration of serum bile acids in infants with atresia, one serum bile acid value does not differentiate neonatal hepatitis from extrahepatic biliary atresia. It is probable that the high proportion of chenodeoxycholate in the extrahepatic atresia group is different from the pattern in other types of cholestatic disease and may be due to an underlying hepatitis. (14 refs.) (Author abstract modified)

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2060 **DREW, JOHN H.; & KITCHEN, WILLIAM W.** Perinatal influence on the hyperbilirubinemia of the newborn infant. Reply. *Journal of Pediatrics*, 90(5):860, 1977. (Letter)

In reply to published comments, Drew and Kitchen note that their study was designed to determine the effects of drugs on serum bilirubin concentrations and not on the mechanisms involved. The concept of bilirubin only existing in 2 forms may be simplistic in that bilirubin in excess may combine with that already bound to albumin, may bind to red blood cells, or can precipitate to form crystals. Failure to note the complex nature of bilirubin binding has led to the unsound theoretical basis of many tests which are subsequently of uncertain clinical significance. In conclusion, more work needs to be done to simplify techniques used in analyzing bilirubin concentrations. (2 refs.)

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2061 **CONSTANTOPOULOS, A.; KARABOULA, K.; & MATSANIOTIS, N.** Lack of effect of phototheraphy on plasma cyclic-AMP in newborn infants. *Archives of Disease in Childhood*, 52(5):416-418, 1977.

A study of 10 newborns (6 males, 4 females) undergoing phototherapy to determine whether plasma adenosine-3′5′-monophosphate (cyclic-AMP) concentrations are altered in such cases is discussed. Nine Ss presented with idiopathic jaundice, and 1 S had glucose-6-phosphatase deficiency. The levels of plasma cyclic-AMP did not change significantly during the phototherapy. The cyclic-AMP did not change in 5 patients on whom measurements were made 24 hours after stopping phototherapy, while serum indirect bilirubin levels fell significantly. These results suggest that phototherapy does not produce appreciable changes in plasma cyclic-AMP levels. (6 refs.)

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MEDICAL ASPECTS — Etiologic Groupings
Trauma or physical agents

2062 **MYERS, RONALD E.; & BRANN, ALFRED W., JR.** Abruptio placentae in rhesus monkey causing brain damage to the fetus. *American Journal of Obstetrics and Gynecology*, 126(8):1048-1049, 1976.

Abruptio placentae occurring spontaneously in a rhesus monkey near term resulted in brain injury to the fetus which resembled the pattern of brain injury that has been produced experimentally by asphyxia. The diagnosis of abruptio placentae was made because of the association of vaginal bleeding with blood clots which lay between the placenta and the uterine wall. That the fetus suffered from asphyxia because of this premature separation of the placenta was testified to by the marked decrease in the pH of the amniotic fluid observed on the third day of bleeding. Samples of fetal arterial blood taken prior to delivery by hysterotomy also showed chemical evidence of marked asphyxia. Moreover, although less than 2 hours passed from the time the mother was anesthetized prior to delivery until the fetal brain was fixed by perfusion, aspects of both the gross and the microscopic changes in the brain identified the pathologic process to be at least 18 hours and more likely, 2 to 3 days old. Thus, the focal brain lesions which were observed probably resulted from events occurring earlier in relation to the separation of the placenta. (2 refs.)

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2063 **INGALLS, ROBERT P.** Brain damage and related conditions. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook*. New York, New York: John Wiley & Sons, 1978, Chapter 6, p. 141-158.

A good deal of MR results from a loosely defined condition called brain damage. Such MR is called exogenous, because it results from interference in normal development as a result of external agents. Brain damage and MR are not synonymous; many people with brain damage have normal intelligence, while many who are obviously MR show no sign of brain damage. There are a number of conditions besides MR which are caused presumably by brain damage or brain dysfunction, and they are found much more frequently among MR populations than in the general population. Among them are epilepsy, cerebral palsy, hyperkinesis, and perceptual problems. Learning disabilities, too, are widely believed to result from minimal brain dysfunction. By definition, a child who is MR cannot be diagnosed as learning disabled, but this is misleading since many MR

children have much more difficulty learning some subjects than others. Learning disabilities represent a sort of middle ground between MR and normalcy, and there is an increasing tendency to label slow-learning children as learning disabled rather than MR because of the less stigmatizing connotations.

2064 American Medical Association Committee on Maternal and Child Care. Statement on child abuse and neglect. *Journal of the American Medical Association*, 238(5):427, 1977. (Editorial)

Child abuse and neglect in the United States have become increasingly ominous, and action is needed to protect helpless children from destructive behavior as well as to determine the underlying parental pathologic condition which provoked the behavior. A physician treating infants and children should train himself to recognize the overt and seek out the covert signs and symptoms of abuse and neglect. He should cultivate his interpersonal skills to serve and protect the child while salvaging the family by providing entry into a multidisciplinary support system of dedicated experts. Through collaborative efforts and mutual respect for each other's strengths, a child-abuse team can initiate action for change and can mobilize a support network of caretakers to achieve a successful outcome for all family members. Federal funds have been awarded for developing training programs to sensitize the public to the severity and the extent of maltreatment and for providing trained workers at every level. The physical, mental, nutritional, sexual, and emotional aspects of abuse and neglect all must be addressed.

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2065 **PHILIPS, IRVING; & WILLIAMS, NANCY.** Psychopathology and mental retardation: a statistical study of 100 mentally retarded children treated at a psychiatric clinic: II. Hyperactivity. *American Journal of Psychiatry*, 134(4):418-419, 1977.

The incidence of hyperactivity in a sample of 100 MR children referred to a psychiatric clinic was analyzed. Hyperactivity was defined in terms consistent with the second edition of the *Diagnostic and Statistical Manual of Mental Disorders* of the American Psychiatric Association. Although 39 of the children were found to be hyperactive, there was no significant relationship between hyperactivity and MR (with or without psychosis) or brain damage. Nor was there any relationship between social class and hyperactivity. Comparison with a group of 79 non-MR emotionally disturbed children revealed no significant difference regarding hyperactivity. These results suggest that hyperactivity is not an inevitable concomitant of MR or a defect in structure associated with MR, and that its genesis is not significantly related to social class, economic position, or intellectual function. (9 refs.)

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2066 **ANTLER, STEPHEN.** Child abuse: an emerging social priority. *Social Work*, 23(1):58-61, 1978.

In the past 15 years, largely through the efforts of a small group of concerned physicians, child abuse—particularly child battering—has emerged as a social issue of apparently great significance. However, grafting a medical approach onto what has been recognized traditionally as a social work concern has had serious consequences for social work policy, practice, and education. Because of the influence of physicians, the tendency to view child abuse as a disease has been exaggerated, and few physicians now discuss the broad social policy implications suggested by the maltreatment of children. The medical model has diverted attention from neglect, the less obvious though more widespread form of maltreatment, and medical and social work emphasis has diverted energies from constructing a congenial environment for family life. Solving the problem of child abuse and neglect requires a fundamental realignment of priorities which accepts the necessity of attacking the social and economic conditions associated with abuse and neglect, such as poverty, unemployment, and inadequate housing. These conditions are disproportionately represented in the ranks of abusing parents. (15 refs.)

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2067 **CADOL, ROGER V.; et al.** *Prospective Study in Child Abuse: The Child Study Program. Final Report.* Denver, Colorado: Denver Department of Health and Hospitals, 1976. 100 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $4.67, plus postage. Order No. ED130469.

One hundred and forty abused children from birth to 72 months old were found to differ significantly from nonabused Ss in the cognitive, physical, social, and emotional areas. An intervention program failed to significantly alter the developmental performance of the abused Ss, who continued to function less optimally than children who sustained nonaccidental trauma to manifest the effects of more adverse family environments, and to show higher percentages of social problems. The experimental design provided for developmental testing, physical measurements, and either routine services, routine services combined with ongoing medical care, or a combination of routine services, medical care, and therapeutic intervention. Information on the abused Ss, their biological parents, environmental factors, the abusive incident, and the identity of the abusers themselves is presented in a series of tables.

2068 **REICHARD, CATHERINE CAMPBELL; & ELDER, S. THOMAS.** The effects of caffeine on reaction time in hyperkinetic and normal children. *American Journal of Psychiatry*, 134(2):144-148, 1977.

The use of caffeine as a suitable substitute for the more potent stimulating drugs in controlling hyperkinetic behavior was investigated by studying: (1) caffeine's effect in hyperkinetic children on a choice reaction time task; (2) whether caffeine has different effects on simple reaction time and choice reaction time; and (3) comparing the effects of caffeine on hyperkinetic and normal children in order to determine if these effects can be described by the law of initial values or as paradoxical. In the double-blind study, 6 hyperkinetic children and 6 normal subjects matched by age and sex were given mean quantities of 163.3mg and 168.3mg of caffeine per subject, respectively, in the first testing session. A placebo was administered in the second session and nothing in the third, or control, session. Results indicated that the law of initial values best described the observed effects. Caffeine was found to produce an increase in the accuracy of stimulus identification and processing and a decrease in lapses of attention for the hyperkinetic group. (30 refs.)

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2069 **ACKLEY, DANA C.** A brief overview of child abuse. *Social Casework*, 58(1):21-24, 1977.

An overview of child abuse is presented for use by mental health professionals in educating and consulting with nonprofessionals about child abuse. The discussion focuses on the factors which lead a parent to physically or emotionally abuse his child, the type of child likely to be abused, the effects of abuse on the child and parent, and the situation as it exists for the abused child and the abusive parent. The solution for breaking the cycle of child abuse rests on the premise that abusive parents are maladjusted people in need of help and understanding rather than condemnation. Abusive parents most often were abused children. Abusive behavior is a manifestation of the parent's concept of himself as inadequate and worthless. In some cases, it is best to remove the children permanently from the home while letting the parents know that not everyone is best equipped to be a parent. More often, the parents can be offered treatment which will help them to learn to relate to their children. (4 refs.)

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2070 Herner & Company. *Four Perspectives on the Status of Child Abuse and Neglect Research.* Friedman, Robert M.; et al. Washington, D.C., 1976. 281 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $15.39, plus postage. Order No. ED127764.

The current status of child abuse and neglect research is discussed in terms of mental health, medicine, law, and social work. Mental health

topics covered are research methodology, prediction, long-term effects, theoretical approaches, and characteristics of victims, perpetrators, families, and situations. The role of both "traditional" and "less traditional" medicine is reviewed, including the role of nursing, physical effects, prevention, developmental effects, and the interface of medicine with other social and cultural issues relating to child abuse and neglect. The legal review covers criminal law, reporting statutes, neglect statutes, jurisdiction, the relationship of law and other disciplines, and childrens' and parents' rights. The social work perspective provides a definition of neglect and discusses influences contributory to neglect, early warning signals, and sequelae. Conclusions and recommendations for future research are presented for each of the 4 fields.

2071 **FEINGOLD, BEN F.** Hyperkinesis and learning disabilities linked to the ingestion of artificial food colors and flavors. *Journal of Learning Disabilities*, 9(9):551-559, 1976.

A discussion of the history of hyperkinesis and learning disabilities is followed by a discussion of food additives. The Kaiser-Permanente (K-P) Diet, which omits foods containing additives, has proven effective in modifying behavioral disturbances in both adults and children. Strict application of the K-P diet for children results in improvement in the behavior pattern, muscular coordination, cognitive and perceptual response (with absence of related deficits), and ultimately in learning ability. Length of response to treatment is highly correlated with age. The complete reversal of behavioral and learning deficits following elimination of artificial colors and flavors suggests a primary extra-uterine etiology for learning disabilities. (21 refs.)

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2072 **SPRING, CARL; & SANDOVAL, JONATHAN.** Food additives and hyperkinesis: a critical evaluation of the evidence. *Journal of Learning Disabilities*, 9(9):560-569, 1976.

This article reviews the claims that have been made for the Feingold hypothesis that artificial food colors and flavors cause hyperactivity, and the extent to which these claims are supported by evidence. Questions are raised on Feingold's opinion that increased use of additives has caused an "epidemic" of hyperactivity. Results from clinical tests and uncontrolled studies of an elimination diet and a review of the contaminating effect of placebo responses show equivocal results which should be interpreted with caution. Further public advocacy should be discouraged until the effectiveness of the Kaiser-Permanente diet for a defined population is established by controlled research. (23 refs.)

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2073 **AXELROD, PENNY; HALLER, JEROME S.; & HUSSEY, HANS R.** Questions about hyperkinesis study. *Pediatrics*, 60(5):770-772, 1977. (Letters)

Drs. Axelrod and Haller point out that Drs. Hussey and Cohen (*Pediatrics*, 57:4, January, 1976) designated students in their study as hyperkinetic based on a questionnaire assessing social maturity, neuromuscular development, academic performance, and general attitude and behavior, validating its use by a high correlation (.77) with a research instrument used by Conners which measures primarily aggressive, disturbing behavior. This rating system would tend to select primarily asocial, aggressive children, rather than children with such hyperactive behaviors as fiddling with objects, disturbing others, and manifesting restlessness and excitability. Difficulties in the experimental design include absence of data analysis which demonstrates that the control and experimental groups are in fact matched for level of intelligence and lack of statistical information such as standard deviations of IQ scores. Medical, educational, and psychiatric interventions were also disregarded in the article, so that the prognosis for the hyperkinetic child seems unnecessarily dismal. Dr. Hussey replies that the questionnaire did segregate children at high risk from children at low risk and included learning and behavioral items, making it broader than the Conners questionnaire. Hyperkinetic children do badly on group IQ tests, although treatment over a 2-year period has produced an average rise of 20 points in the IQ's of severely hyperkinetic

children. The implication that 70 percent will improve without treatment is not a dismal prognosis. Therapeutic interventions were not discussed because an untreated group was being described. Hyperkinesis when revealed in the fourth or fifth grade may have a more serious prognosis than when discovered in the second grade, and the course of the disorder is different in boys and girls. (10 refs.)

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2074 **JOHNSON, CHARLES F.; & PRINZ, ROBERT.** Hyperactivity is in the eyes of the beholder: an evaluation of how teachers view the hyperactive child. *Clinical Pediatrics*, 15(3):222-228, 233-238, 1976.

A survey of elementary school teachers to determine how they define and manage hyperactivity showed that teacher and physician differ in their methods of identifying and handling hyperactive children, whether in a clinical or classroom setting. A comparison of teacher and physician ratings of 201 children with an average age of 8 years and 8 months referred to a child development center for evaluation showed that teachers rated 51 percent of the girls and 57 percent of the boys as overactive, compared to 13 and 22 percent respectively by physicians. Findings from a questionnaire sent to 104 teachers in 4 randomly selected elementary schools to test their knowledge of hyperactivity showed that movement was the important variable in labeling the child; that the incidence of hyperactivity identified in children increased with the age of the teacher; and that the distractibility of the hyperactive child was the primary hindrance to his ability to learn. Various manipulative techniques should be utilized in the classroom before referring the hyperactive child for medication. The physician, to compensate for the limitations of behavioral observation in his office, should communicate fully with the teacher regarding the nature of the child's behavioral problems. (32 refs.)

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2075 **AMIEL-TISON, CLAUDINE; KOROBKIN, ROWENA; & ESQUE-VOUCOULOUX, MARIE-THERESE.** Neck extensor hypertonia: a clinical sign of insult to the central nervous system of the newborn. *Early Human Development*, 1(2):181-190, 1977.

Of 1743 newborns over 37 weeks gestational age, 17 appeared to have signs of cerebral insult according to the classified criteria of abnormal state of consciousness, tone, and reflexes. Of these 17, 12 (70 percent) had neck extensor hypertonia. Abnormal hypertonia of the neck extensor muscles in newborns may be appreciated by observing spontaneous posture, evaluating resistance to repeated passive flexion of the head, and eliciting the head straightening reflexes. It may be possible to use neck extensor hypertonia as an adjunct to neurological examination. Of 1655 newborns with normal neurological examinations only 12 showed neck extensor hypertonia. Techniques for measuring active and passive flexor and extensor muscle responses are detailed. (10 refs.)

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2076 **SHAYWITZ, BENNETT A.; SIEGAL, NORMAN J.; & PEARSON, HOWARD A.** Megavitamins for minimal brain dysfunction: a potentially dangerous therapy. *Journal of the American Medical Association*, 238(16):1749-1750, 1977.

Vitamin A intoxication as a consequence of megavitamin therapy for minimal brain dysfunction in a 4-year-old boy is reported. The boy was initially brought to the hospital for treatment of fever and irritability. The patient had classical symptoms of hypervitaminosis A: bone pain, fissuring of the lips, and hepatomegaly. Roentgenograms of his long bones were normal, but the bone scan was abnormal, suggesting that abnormal bone metabolism might precede actual structural changes, and that bone scan might provide an early test for this intoxication. A vitamin A level reading was 1,430mg/dl, more than 10 times the normal level (20 to 80mg/dl). Upon questioning, it was discovered that the child brought bottles of vitamin tablets to nursery school and ate the vitamins continuously. During his 4-week hospital stay, the child's vitamin A level declined gradually to 110mg/dl, although liver

function tests continued to show a mild fatty infiltration with vacuolated cells consistent with symptoms of vitamin A intoxication. None of the tests reporting successful use of megavitamin therapy for learning disabilities included a placebo group or double blind procedures. If even a small part of the 5 to 10 percent of the school age population with minimal brain dysfunction were treated with megavitamin therapy, the potential for complications would be substantial. (9 refs.)

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2077 **WINSBERG, BERTRAND G.; YEPES, LUIS E.; & BIALER, IRV.** Pharmacologic management of children with hyperactive/aggressive/inattentive behavior disorders. *Clinical Pediatrics*, 15(5):471-477, 1976.

A number of pharmacological choices are open to the physician in treating hyperactive children. The most effective drugs seem to be psychostimulants, tricyclic compounds, neuroleptics, phenothiazines, and butyrophenones. In general such treatments have a relatively low observed rate of side effects, but there are special considerations involved in such long-term treatment, including the development of tolerance. Serious side effects can include tardive dyskinesia, blood and liver toxicity, and seizures. (21 refs.)

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2078 **SWANSON, JAMES; KINSBOURNE, MARCEL; ROBERTS, WENDY; & ZUCKER, KENNETH.** Time-response analysis of the effect of stimulant medication on the learning ability of children referred for hyperactivity. *Pediatrics*, 61(1):21-29, 1978.

The time course effectiveness of methylphenidate (Ritalin; 10mg orally) on cognitive performance was assessed in 43 hyperactive children. A paired-associated learning task was selected to monitor the behavioral response to the drug treatment because performance on this task is highly correlated with performance in the classroom. The actual task involved assigning stimuli (animals) to classes (directions). The maximum effect on learning task performance occurred within 2 hours after administration of the drug, and the 2-hour onset time held for the favorable, the adverse, and the overdose response pattern. This effect on cognitive performance dissipated within the same day. Thirty percent of the patients had adverse cognitive responses to stimulants, which is consistent with other reported findings. (41 refs.)

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2079 ***O'TUAMA, L. A.; SWISHER, C. N.; REICHLER, R. J.; ROUTH, D. K.; **TIWARY, CHANDRA M.; & ***ROSENBLOOM, ARLAN L.** Lack of effect of TRH in minimal brain dysfunction. *Pediatrics*, 59(6):955-956, 1977. (Letters)

In contrast to the finding of Tiwary and colleagues that thyrotropin releasing hormone (TRH) had a beneficial effect on 2 children with hyperkinetic impulse disorder, a similar study of 10 children by O'Tuama and associates found that TRH and placebo did not differ in their effects on children with hyperkinetic impulse disorder and minimal brain dysfunction. In the O'Tuama study, objective measurement of activity in a standardized play setting was begun 30 minutes after injection of TRH and continued at 1-hour intervals to 4 hours, while in the Tiwary study, observations began about 2.5 hours after injection, were continued for 5 hours, and were repeated the following day. Tiwary notes that this difference in the timing of the observations may account for the discrepancy in findings of the 2 studies. In addition, the O'Tuama study concentrated observation entirely on activity level, while the Tiwary study included measures of quality and appropriateness of task performance. (5 refs.)

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2080 **MELNICK, M.** Brain damage in survivor after in-utero death of monozygous co-twin. *Lancet*, 2(8051):1287, 1977. (Letter)

Twin data from the Collaborative Perinatal Project were used to confirm the relationship between disseminated intravascular coagulation and brain damage in the surviving twin of a twinship in which one member was stillborn. The study yielded 12 pairs in which the twin of a liveborn infant was born dead among 188 confirmed monozygous twin pairs. Five of these cases were intrapartum deaths and were discounted. In the remaining 7 in-utero deaths, all the dead fetuses were macerated with varying degrees of autolysis. Five of the liveborn twins of these cases had normal head circumferences, I.Q.s and psychomotor development. In one twin pair the live twin was jaundiced and had seizure activity from the second day of life. He died at 2 months, and post mortem revealed necrosis of the white matter of the cerebellum. The remaining twin of another pair had a head circumference at the third percentile from age 1 to age 7, but psychomotor development at 1, 4, and 7 years was normal. Other surviving twins had normal head circumferences and psychomotor development. The case of the twin who died at 2 months of age supports the hypothesis of Darkin et al. that disseminated intravascular coagulation caused by prenatal death of a twin causes brain damage in the liveborn twin of a monochorionic twinship. (6 refs.)

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2081 **GUERIN, LUCY SWENEY.** Hospitalization as a positive experience for poverty children: observations on children from low-income, multi-problem families. *Clinical Pediatrics*, 16(6):509-513, 1977.

For children from low-income, multi-problem families, hospitalization may be the end result of insidious neglect or outright physical abuse. The rigid schedules by which hospitals operate form a dependable, clear structure that may become comfortable to children whose home lives are fraught with chaos. For children who have been deprived of proper nutrition, comfort, and medical attention, hospitalization enables them to feel well physically, perhaps for the first time. Often secondary health, developmental, or behavioral problems which may or may not be related to the condition for which the child is hospitalized are discovered. With emotional support from the hospital staff, the child may be able to develop resources for coping with stress while hospitalized. As long as children are allowed to return to conditions that are physically or psychologically dangerous to their health, however, the cycle of deprivation in which they are forced to live is perpetuated. (9 refs.)

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2082 **GARFUNKEL, J. M.** The effects of methylphenidate on the handwriting of children with minimal brain dysfunction. Commentary. *Journal of Pediatrics*, 91(1):133, 1977.

Independently of the controversy concerning the use of central nervous system stimulants in children with minimal brain dysfunction (MBD), it is believed that these agents, particularly methylphenidate and dextroamphetamine, may be beneficial in treating hyperactive behavior and attention disorder in MBD children. It has recently been shown that improvement in fine motor coordination occurs with long-term therapy. However, the study under discussion did not demonstrate any improved academic performance in such patients. Additional studies are needed to determine the proper role of stimulant therapy in the treatment of MBD. (4 refs.)

2083 **LERER, ROBERT J.; LERER, M. PAMELA; & ARTNER, JEANNE.** The effects of methylphenidate on the handwriting of children with minimal brain dysfunction. *Journal of Pediatrics*, 91(1):127-132, 1977.

Methylphenidate or placebo was given to 50 children with the diagnosis of minimal brain

dysfunction (MBD) who also had handwriting deficits. Fifty-two percent of the children showed improvement in handwriting after a 4 week course of methylphenidate. One patient improved under placebo treatment, but showed further improvement after he was given methylphenidate. With the withdrawal of methylphenidate, handwriting deteriorated promptly. Of the children on drug therapy, 72 percent were considered improved behaviorally by their teachers, whereas only 14 percent showed behavioral improvement in the placebo group. Improvement in handwriting skills, which may have been directly related to improvement in fine motor coordination, was maintained for up to 26 months in 21 children who received methylphenidate for an extended period. (15 refs.)

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2084 **ROHN, REUBEN D.; SARLES, RICHARD M.; KENNY, THOMAS J.; REYNOLDS, BRENDA J.; & *HEALD, FELIX P.** Adolescents who attempt suicide. *Journal of Pediatrics*, 90(4):636-638, 1977.

In a group of 65 adolescents identified at the University of Maryland as having attempted suicide, 75 percent were girls, and age at time of the attempt ranged from 7 to 19 years, with a median age of 16 years. Eighty-seven percent of the teen-agers attempted suicide at home. In 83 percent of the suicide attempts a toxic substance was ingested. Another 13 percent slashed their wrists; only 4 percent used violent means (gunshot and stab wounds; leaping from a window). Of the whole group, 18 percent had made a previous attempt, and 9 percent had tried 2 or more times. Of those with repeated attempts, 58 percent were boys. Suicide attempts were least frequent in spring. Major characteristics of these adolescents included long-term family disruption, social isolation, and academic difficulties. Results of psychological tests administered to 25 of these adolescents revealed a significantly higher incidence of minimal brain dysfunction in suicide attempters than in a matched control group. Findings of the study support and expand the hypothesis that attempted suicide has a multifactorial etiology. (19 refs.)

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2085 **SCHNEIDER, R.; & *REMSCHMIDT, H.** [The effect of age at injury on perceptual, cognitive and social development in brain-damaged children: a structural comparison of brain dysfunction with perinatal and with later origin.] *Zeitschrift fur Kinder- und Jugendpsychiatrie*, 5(4):317-345, 1977.

A psychological test battery based upon the Piagetian theory of development was used to compare 20 children with perinatal brain damage due to asphyxia, 20 children who had suffered brain damage due to encephalitis at ages 3 to 5 years, and a control group. All groups were matched for IQ and socioeconomic status and were tested at ages 8 to 11 years. The test battery included experiments on visual perception, conservation of quantities, reversibility and egocentrism, and multidimensional classification. The consequences of brain damage were found to be more severe among the perinatally damaged children. Visual perception was a particularly vulnerable function in both brain-damaged groups, whereas an impairment of visuomotor coordination was seen only among the perinatally damaged children. Tests of cognitive skills revealed no differences among the 3 groups when simple tasks were given, but in more complex situations both brain-damaged groups performed poorly, the perinatally damaged children doing worse than the children damaged later. The brain-damaged children appeared to use the mechanism of cognitive compensation to cope with tasks of higher complexity to a greater extent than the control group. (39 refs.)

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2086 **PADILLA DE OLIVARES, A.; NEIRA, E.; RIQUELME DE K, R.; & SANHUEZA, F.** [Evaluation of symptoms in the clinical diagnosis of minimal brain dysfunction in an unselected group of children.] *Zeitschrift fur Kinder- und Jugendpsychiatrie*, 5(4):360-364, 1977.

An unselected sample of 53 7-year-olds and 8-year-olds was evaluated for neurologic and behavioral abnormalities in an effort to determine the prevalence of minimal brain dysfunction. A diagnosis of minimal brain dysfunction was made in 2 children. Ten children manifested neurologic

abnormalities as well as behavior problems compatible with the hyperkinetic syndrome. Nine children with neurologic abnormalities had no behavior problems.

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2087 **PADILLA DE OLIVARES, A.; NEIRA, E.; RAFAEL, S.; RIQUELME DE K., R.; & SANHUEZA, F.** [Behavioral immaturity and neurological immaturity.] *Zeitschrift fur Kinder- und Jugendpsychiatrie*, 5(4):365-376, 1977.

The data obtained from an examination of an unselected class of school children in 1970, conducted to assess the usefulness of the tests administered for the diagnosis of minimal brain dysfunction, were compared with the data from an examination conducted 5 years later using the same testing instruments. Neurologic and behavior problems as possible sequelae of minimal brain damage were found more frequently than expected, but not all positive findings could be classified as pathologic. Quantitative assessment of the neurologic findings appeared to be very important. The proportion of normal children in the group remained constant at almost 40 percent over the 5-year period. Three children (6.25 percent) were diagnosed as having minimal brain dysfunction. The remaining children, with mild but clearly detectable neurologic deviations, could be subdivided into (a) those with behavior problems in which the characteristic problems were still present at 5-year followup, and (b) those who showed neurologic signs but no learning or behavior problems at school. The relationship between behavioral and neurologic findings was found to be important in both the normal and pathologic range. (15 refs.)

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2088 **GREEN, ARTHUR H.** Psychopathology of abused children. *Journal of the American Academy of Child Psychiatry*, 17(1):91-103, 1978.

A pilot treatment program was developed for abused children and their families. A major purpose of the program was the in-depth exploration of the psychopathology and psychodynamics typical of abused children and their genetic relationship to a hostile environment. Another aim was the development of specialized therapeutic techniques designed to reverse the psychopathology of the child and to prevent further maltreatment. Approximately 20 abused children (chronological age range 5 to 14 years) were involved in outpatient individual psychotherapy over a 3-year period, which was complemented by various modes of therapeutic intervention with their parents. Some of the more prominent areas of disturbance manifested by the children were overall impairment of ego functioning associated with intellectual and cognitive defects, traumatic reactions with acute anxiety states, pathological object relationships characterized by the failure to develop basic trust, excessive use of primitive defenses, impaired impulse control, impaired self-concept, masochistic and self-destructive behavior, difficulties with separation, and problems in school adjustment. (13 refs.)

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2089 **SIMPSON, JAMES S.** Trauma: The leading childhood killer in Canada and elsewhere. *Clinical Pediatrics*, 15(4):313-316, 1976.

A statistical survey of childhood trauma resulting from vehicle and traffic accidents, drowning, poisoning, suicide, burns, head injuries, and child abuse is presented. Preventive efforts of associations such as the Canadian Pediatric Association, the American Academy of Pediatrics, and many government agencies resulted in safety containers for drugs, flameproof clothing for young children, and creation of public awareness of dangerous products and of the battered child syndrome. The number of childhood deaths and permanent disabilities caused by trauma could be decreased by the efforts of the medical and professional associations with the cooperation of the whole community at all levels. Education of the public in order to enlist their enthusiastic support and more teaching about trauma in medical and nursing schools are recommended. (28 refs.)

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MEDICAL ASPECTS – Etiologic Groupings
Postnatal growths and gross brain disease

2090 **HAYDEN, M. R.; *VINIK, A. I.; PAUL, M.; & BEIGHTON, P.** Impaired prolactin release in Huntington's chorea: evidence for dopaminergic excess. *Lancet*, 2(8035):423-426, 1977.

A study of 8 patients with Huntington's chorea revealed low basal prolactin levels and impaired prolactin responses to chlorpromazine (CPZ) and thyrotropin-releasing hormone (TRH) in the affected patients. Two juvenile rigid patients with Huntington's chorea had excessive prolactin responses to CPZ. Although approximately half of 23 first-degree relatives of the patients had normal responses to CPZ and TRH, and the mean for responses for all 23 were normal, 12 relatives had abnormal prolactin responses to CPZ. The lowered prolactin levels and poor response to TRH and CPZ are compatible with enhanced hypothalamic dopaminergic activity in Huntington's chorea. The abnormal prolactin responses seen in the first-degree relatives of Huntington's patients offers hope for eventual development of a means for identifying genetic carriers of the disease. (26 refs.)

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2091 **RATTAZZI, MARIO C.; & DAVIDSON, RONALD G.** Prenatal diagnosis of metachromatic leukodystrophy by electrophoretic and immunologic techniques. *Pediatric Research*, 11(10):1072, 1977.

An absence of arylsulfatase A (AS-A) was detected in cultured amniotic fluid cells by electrophoresis and immunodiffusion in 2 fetuses with metachromatic leukodystrophy (MLD). In electrophoretic analyses of amniotic fluid in both MLD fetuses and a normal fetus the AS-A band was replaced by a band with lower anodal mobility. Only the anodal band of normal amniotic fluid, however, reacted with the anti-AS-A immune serum in immunoelectrophoresis. Assay of amniotic fluid with p-nitrocatechol sulfate as a substrate showed marked deficiency of AS-A activity in the fluids from the 2 MLD pregnancies. A new arylsulfatase isoenzyme was found in cell-free amniotic fluid from normal and MLD fetuses. MLD can be reliably diagnosed prenatally using electrophoretic and immunodiffusion techniques by detecting AS-A absence in amniotic fluid cells. Analysis of amniotic fluid is less accurate. (42 refs.)

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2092 **CAMERON, ERIC; SESHADRI, RAMA S.; PAI, K. R. MOHAN; & *DENT, PETER B.** Heat stable E-receptors on leukemic lymphoblasts in ataxia-telangiectasia. *Journal of Pediatrics*, 91(2):269-271, 1977.

A 7-year-old boy was diagnosed to have ataxia-telangiectasia on the basis of ataxia, conjunctival telangiectases, and frequent respiratory infection. At age 12, he developed acute lymphoblastic leukemia. Studies of peripheral blood cells and bone aspirate revealed lymphoblasts with heat-stable sheep erythrocyte receptors, which defined the neoplasia as a T cell leukemia. During a period of remission, the blood mononuclear cell E-rosettes lost their heat stability and showed improved responsiveness to phytohemagglutinin, indicating a disappearance of the abnormal lymphoblasts. Alpha fetoprotein and carcinoembryonic antigen levels were both elevated. The patient died 11 weeks after the initial diagnosis of acute lymphoblastic anemia. At autopsy, the thymus and lymphoid tissues were hypoplastic and dysplastic. Intranuclear inclusion bodies were present in numerous organs, compatible with widespread cytomegalovirus infection. (8 ref.)

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2093 **ROSEN, MARVIN; CLARK, GERALD R.; & KIVITZ, MARVIN S.** Habilitation of the cerebral palsied citizen. *Habilitation of the Handicapped: New Dimensions in Programs for the Developmentally Disabled.* Baltimore, Maryland: University Park Press, 1977, pp. 77-99.

The citizen with cerebral palsy (CP) frequently represents a combination of physical, mental, social, and vocational disabilities that pose special problems to the habilitation counselor. The survey by Wolfe and Reid in 1958 of over 3,000 CP children and adults revealed that only 23 percent were attending school, 74 percent required speech therapy while only 35 percent were receiving any, only 3 percent were employed, and the average grade completed was fifth, with the CP student requiring approximately 1.5 years longer to complete any given grade than the normal student. The follow-up study by Klapper and Birch in 1962 of 89 of 115 previously tested students (ages 15-28) revealed over half to be unemployed. Over 60 percent were completely dependent financially on their families, and there was a high correlation between levels of self-care and degree of employability, school achievement, economic status, and degree of social integration. A study of CP college students by Muthard and Hutchison in 1968 found that CPs who had pursued a vocationally oriented education were more often employed than those who had attended college, liked their work better, earned more, and had fewer adjustment problems. The study by Floor and Rosen (1976) evaluated the effectiveness of the maximum, moderate, and minimum treatment groups into which 140 CP adults with previous habilitation training were divided. A significant relationship was found to exist between the Scale of Employability and financial dependence, job level, amount of income, and daily living skills. (29 refs.)

2094 **WENGER, DAVID A.; & RICCARDI, VINCENT M.** Possible misdiagnosis of Krabbe disease. *Journal of Pediatrics*, 88(1):76-79, 1976.

A study of 2 families, 1 with classical Krabbe disease (globoid cell leukodystrophy) and 1 without Krabbe disease but with the attendant abnormalities in beta-galactosidase activity, demonstrates a possibility for the misdiagnosis of Krabbe disease. The second family seems to represent a new mutant allele for beta-galactosidase activity in the heterozygote with values typical of patients with homozygous Krabbe disease. Subjects with this mutation have drastically lowered leukocyte galactosyl ceramide and lactosyl ceramide galactosidase activity. These lowered values in subjects not exhibiting Krabbe disease indicate that enzyme tests alone do not always indicate a Krabbe homozygous state. Within the same family, some members were shown to have the mutant allele and others to have Krabbe disease, indicating a line between the two. Fibroblasts were found to offer a more sensitive measure of enzyme activity and differentiation between the two conditions than leukocytes or amniotic fluid cells. Thus caution should be exercised in situations where enzyme activity might be used as the sole criterion for diagnosing Krabbe disease, as in evaluating amniocentesis specimens.

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2095 **MCLEAN, D. R.; & NIHEI, T.** Uptake of dopamine and 5-hydroxy tryptamine by platelets from patients with Huntington's chorea. *Lancet*, 1(8005):249, 1977. (Letter)

An attempt was made to confirm a previous observation of abnormally high dopamine (DA) and 5-hydroxytryptamine (5-HT) uptake by platelets from patients with Huntington's chorea. Incubation times of 20 and 40 min were chosen for 5-HT and DA, respectively, to determine the overall uptake level. The normal ranges of uptake values were determined on 20 normal blood samples from 17 people, including individuals sampled at 1-2 week intervals. Chronological ages of the patients (2 males and 4 females) ranged between 42 and 74 years. Only the 74-year-old was receiving drug therapy (thioridazine). Except at the two lowest concentrations, DA uptake by Huntington platelets was significantly (two-sample t-test, $p>0.01$) higher than by normal platelets, whereas 5-HT uptake showed no difference. The

discrepancy between these results and the previous report may be due to the fact that citrate buffer was used earlier, while an edetic acid buffer (EDTA) was used in this study. (4 refs.)

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2096 BESLEY, G.T.N.; & BAIN, A. D. Krabbe's globoid cell leucodystrophy. Studies on galactosylceramide β-galactosidase and non-specific β-galactosidase of leucocytes, cultured skin fibroblasts, and amniotic fluid cells. *Journal of Medical Genetics*, 13(3):195-199, 1976.

Activities of galactosylceramide β-galactosidase (cerebrosidase) and nonspecific β-galactosidase were measured in cultured skin fibroblasts and leukocytes from a family with Krabbe's globoid cell leukodystrophy (GLD), in cultured skin fibroblasts from a patient with GM_1 gangliosidosis, and in cultured amniotic fluid cells from mothers at risk for fetal neural tube defects or chromosomal abnormalities. Cerebrosidase activity was deficient in GLD fibroblasts and leukocytes but was increased in GM_1 gangliosidosis fibroblasts. Two forms of each enzyme were found on isoelectric focusing, except in GM_1 gangliosidosis fibroblasts, where a single, intermediate peak was obtained. The use of cultured cells in assessing isoenzyme abnormalities associated with certain neurolipidoses is discussed. (23 refs.)

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2097 MOHAMMAD, AKBAR M.; MEYER, JOHN; & HAKAMI, NASROLLAH. Long-term survival following brain metastasis of Wilms tumor. *Journal of Pediatrics*, 90(4):660, 1977. (Letter)

A child with Wilms' tumor developed brain metastasis and recurrent pulmonary metastases. She was treated with radiation, surgical resection, vincristine, and actinomycin D. She has survived for more than 9.5 years since the original diagnosis of Wilms' tumor and more than 8.5 years since the onset of cerebral metastasis. She has remained disease-free for over 5 years and has received no treatment for over 3 years. This case demonstrates that prolonged disease-free survival and apparent "cure" can occur after cerebral metastasis of Wilms' tumor. (4 refs.)

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2098 BECKER, LAURENCE E.; ARMSTRONG, JOHN B.; & MELOFF, KEITH L. A large head in a 2-year-old boy. *Journal of Pediatrics*, 91(3):499-502, 1977.

After an uneventful neonatal period, a boy was evaluated over a period of 2 years for recurrent generalized seizures. Clinical features included minimal and nonprogressive hydrocephalus, progressive and spectacular macrocephaly, mildly raised intracranial pressure, and chronic, diffuse white and gray matter disease which followed a deteriorating course. The absence of progressive hydrocephalus, cerebral edema, or space-taking intracranial lesions indicated that the progressive macrocephaly was caused by an increase in the brain matter itself. Pathologic findings of megalencephaly, Rosenthal fibers, demyelination, and astrogliosis confirmed the diagnosis of Alexander's disease. (5 refs.)

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2099 SIMNO, FRANK A.; DRUTZ, JAN E.; & CORRIERE, JOSEPH N. Wilms tumor and pigmented nevi. *Journal of Pediatrics*, 90(5):840, 1977. (Letter)

The case of a four-year-old female is reported who developed multiple linear nevi coincident with the discovery of a Wilms' tumor. The patient had developed an increasing number of pigmented lesions over her trunk and extremities over a 3 month period. Examination revealed a firm, nontender left upper quadrant abdominal mass which was pathologically identified as a Wilms' tumor. It is noted that numerous congenital anomalies are associated with Wilms' tumor, including hemihypertrophy, aniridia, and genitourinary abnormalities. In addition, hamartomas, including birthmarks and multiple nevi, are noted

in up to 7.9 percent of children with Wilms' tumor. (3 refs.)

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2100 **BODENSTEINER, JOHN; BELL, W. E.; & HART, M. N.** 13-year survival of a child with an untreated brainstem glioma. *Journal of Pediatrics*, 90(5):842-843, 1977. (Letter)

Diagnosis of a brainstem glioma was delayed 10 years because of its insidious presentation. A male infant was normal until 2 months when spontaneous nystagmus was noted. At age 26 months, the patient was noted to have awkward gait, dysarthria, nystagmus, increased reflexes, and positive Babinski sign. Cerebrospinal fluid examination was normal, and the diagnosis of cerebral palsy was made. The patient remained neurologically stable until age 10, when there were increasing difficulties with bulbar musculature and extremities. Surgery at age 11 demonstrated a low grade astrocytoma involving the upper cervical cord and brainstem. The diagnosis was missed at age 26 months because attention was focused toward other diagnostic possibilities. (5 refs.)

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MEDICAL ASPECTS — Etiologic Groupings
Malnutrition and growth disorders

2101 **POLEY, J. R.; SMITH, J. D.; THOMPSON, J. B.; & SEELY, J. R.** Improved micellar dispersal of dietary lipid by bile acids during replacement therapy in growth-hormone deficient children. *Pediatric Research*, 11(12):1186-1191, 1977.

To study whether human growth hormone (HGH) exerts an influence on digestive processes, the composition of the aqueous (micellar) phase during the digestion of 2 consecutive meals in 5 growth hormone-deficient children and in 3 control subjects, before and after replacement therapy with HGH, was analyzed. Before treatment the average micellar bile acid concentration (MBAC) was 5.0mM ± 0.6mM during the first meal and 3.5 ± 0.9mM during the second meal. After 1 year of treatment, the MBAC went up to 9.7 and 7.1 (which are within the normal adult range), respectively. Concomitantly with an increased MBAC, micellar lipid also increased. The clinical implications of the results are indirect, but may point towards an interrelationship between hormonal stimulation and certain aspects of hepatobiliary function, which influence digestive processes. (36 refs.)

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2102 **STEINHAUSEN, HANS-CHRISTOPH.** [Psychoendocrinological studies of dwarfism in childhood and adolescence.] *Zeitschrift fur Kinder- und Jugendpsychiatrie*, 5(4):346-359, 1977.

Thirty-two dwarfed children and adolescents were the Ss of a psychoendocrinological study. Data were obtained using psychometric intelligence tests and personality questionnaires and were analyzed with regard to the significance of isolated growth hormone deficiency, multiple pituitary hormone deficiency, and dwarfism of non-endocrine origin. The dwarfed Ss did not differ from a control group of normal stature as far as intelligence factors were concerned, but were distinguished by a specific personality pattern characterized by passivity and shyness. Endocrine factors had no impact on any of the psychometric variables. Further data were obtained on a

subsample using a structured interview technique. Analysis revealed not only features of the psychoendocrine syndrome but also the coping behaviors used commonly by these dwarfs. (24 refs.)

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2103 GRACEY, MICHAEL; CULLITY, G. J.; SUHARJONO; & SUNOTO. The stomach in malnutrition. *Archives of Disease in Childhood*, 52(4):325-327, 1977.

The adequacy of gastric acid secretion in controlling intestinal microflora in protein-calorie malnutrition was investigated in Jakarta, India. Ss included 11 girls and 3 boys aged 7 to 54 months; 7 were undernourished, 4 had kwashiorkor, and 3 were marasmic. Gastric specimens were collected and compared with 21 age- and sex-matched controls. Basal gastric acid output was reduced in 9 out of 14 experimental Ss with malnutrition compared with all control Ss. The response of the gastric mucosa to stimulation by pentagastrin was impaired in all the patients, while gastritis of variable severity was present in 8 out of 9 patients in whom biopsies were performed. Impaired gastric acid secretion probably contributes towards bacterial overgrowth and diarrheal diseases in malnourished children. (12 refs.)

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2104 FERDINANDUS, LOUTITIA D.; & FITZGERALD, JOSEPH F. Effect of maternal protein deprivation on the development of neonatal intestinal function in rats. *Pediatric Research*, 11(7):804-808, 1977.

In vitro absorptive capacity was studied by comparing the intracellular accumulation (IA) of L-leucine (Leu) and D-galactose (Gal) in the offspring of pregnant rats fed either a 27 percent or an 8 percent protein diet. Although absorption of both Leu and Gal was significantly reduced in the offspring of rats fed an 8 percent diet at 2 days, these offspring had significantly increased absorption by the weaning period (greater than the high-protein offspring). This may reflect accelerated gut maturation manifested by an increase in gut size, cell numbers, and transport sites relative to an improved caloric intake associated with the availability of solid food. (37 refs.)

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2105 ZONANA, JONATHAN; SOTOS, JUAN F.; ROMSHE, CAROLYN A.; FISHER, DELBERT A.; ELDERS, M. JOCELYN; & *RIMOIN, DAVID L. Dominant inheritance of cerebral gigantism. *Journal of Pediatrics*, 91(2):251-256, 1977.

Several members of 3 families showed characteristics of cerebral gigantism, including dysmorphic features, accelerated growth in childhood, and varying degrees of MR. All of the prepubertal patients showed large size at birth, accelerated early growth, and advanced bone age. The adult patients had similar early growth histories, but underwent normal pubertal development and achieved final adult heights at the upper end of the normal range, without striking gigantism. Dysmorphic features observed in these patients included macrocephaly with dolichocephalic configuration, high frontal hairline, high-arched palate, large hands and feet, and increased arm span. Intelligence ranged from the lower range of normal to moderate MR. Growth hormone, insulin, thyroid, adrenal, gonadal, and pituitary functions appeared normal, and no cause for the accelerated growth was apparent. The vertical transmission of the trait and equal expression in both sexes in these families suggest a dominant pattern of inheritance, probably autosomal. (20 refs.)

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2106 **CROSBY, WARREN M.; METCOFF, JACK; COSTILOE, J. PAUL; MAMEESH, M.; SANDSTEAD, H. H.; JACOB, ROBERT A.; MCCLAIN, PHILIP E.; JACOBSON, GAIL; REID, WILLIAM; & BURNS, GAIL.** Fetal malnutrition: an appraisal of correlated factors. *American Journal of Obstetrics and Gynecology*, 128(1):22-29, 1977.

In studying a group of 182 women at midpregnancy, it was found that a concentration of 10 amino acids, alpha-1-globulin, zinc, total carotenes, maternal leukocyte adenosine phosphate, phosphofructokinase activity, ribonucleic acid (RNA) synthesis, and cell size had a statistically significant relationship to fetal growth. Maternal cigarette smoking was associated with lower fetal growth. Smoking mothers also showed a significant reduction in leukocyte RNA synthesis and phosphokinase activity and in the plasma levels of 14 amino acids and carotene, supporting the hypothesis that factors which affect maternal leukocytes also affect the growth of fetal cells in a definable way. Biochemical differences between smoking and nonsmoking mothers, sociocultural data, and anthropometric data are also presented. (21 refs.)

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2107 **KRIEGER, INGEBORG; & TAQI, QAMAR.** Metabolic rate and body composition in rats nutritionally deprived before or after weaning. *Pediatric Research*, 11(7):796-802, 1977.

Nutrient restriction of rats from conception until weaning (Group 1) and from weaning until 10 weeks of age (Group 2) caused severe deficits in body weight, parenchymal organ weight, organ protein, and DNA content with an increase in cell density. By 24 weeks, only rats subjected to early restriction (group 1) showed persistent deficit which was similar for all 4 parameters. At the height of deprivation both groups had a normal basal metabolic rate (BMR) per body weight, organ weight, and protein content, but the BMR per mg organ DNA was low, reflecting a low cellular metabolic rate which evidently offsets the effect of increased cell density on the BMR per body weight, organ weight, and protein content. Measurement of the BMR also showed that BMR paralleled changes in body weight and could be used to measure decreases in total body cell density, which in turn may be used to indicate poor growth potential in infants. The BMR/body weight ratios were not similar to those found in small-for-gestational age dwarfism. (22 refs.)

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2108 **BROWN, GEORGE W.** Failure-to-thrive and behavior. *American Journal of Diseases of Children*, 130(12):1378, 1976. (Letter)

Dr. Brown challenges Drs. Pollitt and Eichler's conclusion that 10 out of 19 (52.6 percent) failure-to-thrive children have more atypical behavior than 1 out of 19 (5.3 percent) normal-growth children, on the basis that the authors' survey procedures, or sample selection factors, are not secure against the Berkson Fallacy, which can act either to obscure relationships that need to be elucidated or to generate relationships that do not exist. Dr. Brown presents a hypothetical statistical case-study to illustrate that uneven selection of subjects alone may be responsible for the marked difference in prevalence of atypical behavior observed between the index, or failure-to-thrive, group and the contrast, or normal-growth, group. (2 refs.)

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2109 **SCOTT, JAMES R.** Fetal growth retardation associated with maternal administration of immunosuppressive drugs. *American Journal of Obstetrics and Gynecology*, 128(6):668-674, 1977.

Groups of pregnant primigravid rats treated with either cyclophosphamide or azathioprine had an increased incidence of fetal death. Fetal and neonatal growth retardation, as reflected by smaller placentas and fetuses, was also noted, indicating a decrease in cell number rather than cell size, showing that water, fat, and protein content were only minimally affected. Analyses of

mean maternal weight gain, spleen weight assays, and changes in the lymph nodes draining the uterus indicate that effects detrimental to the offspring are primarily the result of immunologic and cytotoxic mechanisms. All these detrimental effects would seem to be the result of nonspecific depression of the maternal immune system. Immunosuppression upsets the normal maternal-fetal immunogenetic disparity, which facilitates growth of the fetoplacental unit. In reviewing the literature on pregnant women treated with immunosuppressants (for hematologic disorders, kidney transplants, autoimmune diseases), it was found that such treatment was also associated with small-for-gestational age in humans. (29 refs.)

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2110 **SHIMADA, M.; YAMANO, T.; NAKAMURA, T.; MORIKAWA, Y.; & KUSUNOKI, T.** Effect of maternal malnutrition on matrix cell proliferation in the cerebrum of mouse embryo: an autoradiographic study. *Pediatric Research*, 11(6):728-731, 1977.

Fifteen pregnant mice were fed either low protein diets or calorically restricted diets from the 8th to the 16th day of gestation, when ^{3}H-thymidine was injected. The animals were killed, and coronal sections of the fetal brains were processed for autoradiography. The cerebral cortex at this stage of development consisted of three different layers, the cortical plate, the migratory zone, and the matrix layer. DNA-synthesizing cells were found almost exclusively in the matrix layer, which is the primary producer of neurons and where active cellular proliferation takes place primarily from the 10th to the 16th day of gestation. Malnutrition during this period (both groups) caused about a 14 percent prolongation of the generation time of the matrix cell, the precursor of neurons, thus causing a decrease in neuron production. Malnutrition during the first and second trimester may cause similar results in the human embryo. (30 refs.)

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2111 **COSENS, GLADYS; DIAMOND, ISRAEL; THERIAULT, LINDA L.; & *HURLEY, LUCILLE S.** Magnesium deficiency anemia in the rat fetus. *Pediatric Research*, 11(6):758-764, 1977.

Maternal magnesium deprivation in the rat produces fetal death, congenital malformation (44 percent), and fetal anemia. The anemia is characterized by edema, increased extramedullary hematopoiesis and macrocytosis, poikilocytosis, and erythroblastosis in the circulating blood and is a direct result of red cell malformation. Fetal erythropoiesis was significantly greater in liver, adrenal glands, and spleen in magnesium-deficient fetuses than in controls. Maturation was normoblastic. Total plasma protein from magnesium-deficient fetuses was significantly lower than in controls, thus establishing a factor in fetal edema production. The role of magnesium in protein synthesis is also compatible with a reduction in hemoglobin synthesis, yet may not completely explain the abnormalities and resultant shortened lifespan of the red cells. Unfortunately the data cannot answer the question as to whether or not magnesium deficiency is a contributing factor in human fetal anemia. (23 refs.)

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2112 **JOHN, T. JACOB; BLAZOVICH, JULIE; LIGHTNER, ELMER S.; SIEBER, OTTO F.; CORRIGAN, JAMES J; & HANSEN, RONALD.** Kwashiorkor not associated with poverty. *Journal of Pediatrics*, 90(5):730-735, 1977.

Four infants are described with kwashiorkor that was not associated with either poverty or infection as a predisposing cause of the disease. The deliberate withholding of milk appeared directly responsible and was manifested by a protein deficiency of 5 weeks to 7 months in duration. Features of this specific form of the disease included growth retardation, edema, muscle wasting, mental changes (apathy, irritability, and anorexia), and mild lymphocytosis. A low level of physician awareness of malnutrition as a diagnostic consideration is often responsible for delayed diagnosis. In these patients, recovery was associated with an initial loss of weight and anemia, followed by weight gain and return to good health. (20 refs.)

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2113 **SYKES, P. A.** Errors arising through using the Harvard tables and percentage levels of median weight-for-age in assessing nutritional status. *Archives of Disease in Childhood*, 52(5):391-394, 1977.

Considerable error may arise in using the weight-for-age Harvard tables to assess nutritional status in preschool children. The proportion of children whose weights lie below the Harvard third centile weight-for-age (P_3) was compared with that proportion whose weights lie below the curve representing 80 percent of the Harvard median weight-for-age (P_{50}) in a sample of 417 urban children and 379 rural children under the age of 5 in Sierra Leone. A considerable difference was found in the nutritional level of urban girls and rural girls, whereas boys were apparently similar in urban and rural areas. Distributions were unlike those seen in studies in London and Hong Kong. The 80 percent levels of sex-specific median weight-for-age occupy positions as much as 700g below the sex-specific third centiles for Hong Kong Chinese children, whereas in the London study the local sex-specific 80 percent levels closely follow the local sex-specific P_3. Thus, the Hong Kong 80 percent levels are not comparable with the London 80 percent levels. (12 refs.)

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2114 **NISSENBAUM, MARK; CHUNG, STANLEY M. K.; ROSENBERG, HENRIETTA K.; & BUCK, BILLY E.** Thanatophoric dwarfism. Two case reports and survey of the literature. *Clinical Pediatrics*, 16(8):690-697, 1977.

Two cases of thanatophoric dwarfism, which is a severe form of short-limbed dwarfism causing neonatal death from cardiorespiratory failure, are reported. The characteristic radiographic features which differentiate this uncommon form of dwarfism from the more common, clinically similar achondroplasia and achondrogenesis are seen in the long bones, pelvis, and spine. Markedly flattened vertebral bodies with a typical U-shaped deformity, a flat squat pelvis, and short, bowed extremities with flaring and irregularity of the metaphyses are characteristic. Prenatal diagnosis is possible from radiographs of the maternal abdomen. (24 refs.)

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2115 **GORDON, Y. B.; GRUDZINSKAS, J. G.; JEFFREY, DIANA; & *CHARD, T.** Concentration of pregnancy-specific β1-glycoprotein in maternal blood in normal pregnancy and in intrauterine growth retardation. *Lancet*, 1(8007):331-333, 1977. (Letter)

A radioimmunoassay for pregnancy-specific B_1-glycoprotein (SP_1) is described. This assay has been used to measure circulating concentrations of SP_1 in 153 women in the third trimester of normal pregnancy and in 27 pregnancies associated with intrauterine growth retardation (IUGR) in which the birthweight was below the 10th centile of the normal range. Concentrations of maternal plasma-SP_1 values showed a skewed distribution and rose until the 36th week, thereafter reaching a plateau. Concentrations of SP_1 were depressed on one or more occasions in over 70 percent of mothers of fetuses with IUGR. These results indicate that the measurement of SP_1 may be a valuable index of fetal well-being, particularly in the identification of IUGR. (20 refs.) (Author abstract modified)

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2116 **SAENGER, PAUL; LEVINE, LENORE S.; WIEDEMANN, ECHEHART; SCHWARTZ, ERNEST; & NEW, MARIA I.** Somatomedin in cerebral gigantism. *Journal of Pediatrics*, 88(1):155-156, 1976. (Letter)

Endocrine evaluations of 5 patients with cerebral gigantism were carried out that included measurements of basal levels of serum growth hormone and levels during stimulation with insulin and

arginine and suppression with glucose. Serum somatomedin activity was also determined. Growth hormone responses to stimulation tests were normal in 3 patients, and serum somatomedin was normal in 4 patients. The fifth patient's young age (4) probably accounted for his having a somewhat lower serum level. Since these patients exhibit normal somatomedin activity and growth hormone levels, the possible causes of the excessive growth in cerebral gigantism remain unexplained.

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MEDICAL ASPECTS — Etiologic Groupings
Inborn metabolic errors

2117 **MELANCON, SERGE B.; DALLAIRE, LOUIS; LEMIEUX, BERNARD; ROBITAILLE, PIERRE; & POTIER, MICHAEL.** Dicarboxylic aminoaciduria: an inborn error of amino acid conservation. *Journal of Pediatrics*, 91(3):422-427, 1977.

A massive glutamic and aspartic aminoaciduria was detected shortly after birth in an otherwise healthy infant. At 38 months, the infant's development has been normal. Amino acid clearance studies indicate the presence of renal wastage of dicarboxylic amino acids, but intestinal transport and in vitro oxidation of dicarboxylic acids appear to be intact. Laboratory determinations of fasting blood glucose, urea nitrogen, ammonia, creatinine, uric acid, calcium, phosphorus, alkaline phosphatase, serum protein, electrolytes, lactate, pyruvate, lactic, and glutamic dehydrogenases, glutamic-oxalacetic and glutamic-pyruvic transaminases are within normal range. Clinical and metabolic data suggest that some patients with dicarboxylic aminoaciduria have selective renal conservation defects without clinical abnormalities, while others demonstrate an additional defect in intestinal transport associated with fasting hypoglycemia. Whether patients should be told that they suffer from a nondeleterious mutation that necessitates no therapy remains to be confirmed as more cases emerge from metabolic screening programs and metabolic studies are completed on their respective families. (18 refs.)

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2118 **WILCKEN, BRIDGET; KILHAM, H. A.; & FAULL, K.** Methylmalonic aciduria: a variant form of methylmalonyl coenzyme A apomutase deficiency. *Journal of Pediatrics*, 91(3):428-430, 1977.

Two sisters with methylmalonic aciduria grew and developed normally to 3.5 and 4 years of age, respectively. The elder had had only one previous illness, at 18 months, and was thriving at 6 years without treatment, despite excretion of up to 2g methylmalonic acid per day. The younger sister died at 3 years of age, during her third episode of vomiting. Although cultured skin fibroblasts showed a moderate response to large amounts of added hydroxycobalamin, treatment of the patient with high doses of intramuscular vitamin B_{12} for 10 days failed to lower the urinary excretion of methylmalonic acid. Cobalamin metabolism was normal in this patient, but methylmalonyl coenzyme A apomutase activity was deficient. The clinical course in both sisters was much milder than that previously reported in methylmalonic aciduria that is not responsive to vitamin B_{12}. (11 refs.)

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2119 **JOHNSON, CHARLES F.; KOCH, RICHARD; PETERSON, RAYMOND M.; & FRIEDMAN, EVA GROSS.** Congenital and neurological abnormalities in infants with phenylketonuria. *American Journal of Mental Deficiency*, 82(4):375-379, 1978.

On the basis of the protocol used in a nationwide longitudinal collaborative study of children treated for phenylketonuria (PKU), the occurrence of congenital and neurological abnormalities was reported in 150 children with PKU age 1 year or older, who have been treated with a restricted phenylalanine diet, as compared to 125 non-PKU siblings and the general population. The overall occurrence (9.3 percent) of congenital anomalies was not significantly different from that of the general population. Most of the children with congenital abnormalities had correctable conditions such as strabismus, pyloric stenosis, and congenital dislocation of the hip. The high incidence of pyloric stenosis suggests that infants with this condition or persistent vomiting should be considered for a repeat serum phenylalanine test. Neurological anomalies were infrequent, and none persisted. The findings suggest that women who are heterozygous for PKU do not face a significantly higher incidence of major congenital or neurological anomalies in their offspring as compared with mothers in the general population. (16 refs.)

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2120 **MANZ, FRIEDRICH; SCHMIDT, HILDGUND; SCHARER, KARL; & BICKEL, HORST.** Acid-base status in dietary treatment of phenylketonuria. *Pediatric Research*, 11(10):1084-1087, 1977.

Significant differences in acid-base status, serum potassium and chloride, and urine pH were found in 64 children, aged 3 to 92 months, with phenylketonuria (PKU) treated with 3 different low-phenylalanine protein hydrolyzates (Aponti, Cymogran, AlbumaidXP) and 2 synthetic amino acid mixtures (Aminogram, PAM). Urine pH decreased, renal net acid excretion increased, and acid-base status in 2 cases changed from mild alkalosis on Aponti formula to increasing metabolic acidosis on PAM and modified PAM-P_2 and PAM-P_3 formulas. Differences in renal net acid excretion correlated with differences in chloride and sulfur contents of the urines and of the PAM, P_2, and P_3 diets. New modifications of AlbumaidXP and of PAM showed normal renal net acid excretion in 1 patient with PKU and normal acid-base status in 20 additional patients with PKU. (38 refs.)

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2121 **DI DONATO, STEFANO; *WIESMANN, U. N.; ROSSI, E.; & HERSCHKOWITZ, N.** Multiple abnormalities of ectoglycosyltransferases in cultured fibroblasts from patients with mucolipidosis II: Possible indication for abnormal plasma membrane glycoproteins. *Pediatric Research*, 11(10): 1094-1096, 1977.

Multiple abnormalities of ectoglycosyltransferase activities of endogenous glycoprotein acceptors in cultured fibroblasts from mucolipidosis patients are reported. Findings are compatible with abnormalities of the glycoprotein acceptors at the plasma membranes rather than with defective ectoglycosyltransferases. Ectoglycosyltransferase activities were measured in cultured normal and mucolipidosis II fibroblasts using endogenous glycoproteins and glycolipids and whole cells. Nucleotide pyrophosphatase was completely inhibited with 6mM 5'-AMP. Activities of galactosyl (Gal)-transferase and of N-acetylglucosaminyl (GluNac)-transferase on glycoproteins were higher in nonconfluent cultures. Activities of Gal-transferase in confluent mucolipidosis II cultures and of GluNac-transferase in nonconfluent mucolipidosis II cultures were reduced 50 percent. An abnormal K_m for Gal incorporation into endogenous glycoproteins was found in substrate saturation kinetics of both transferases in mucolipidosis II fibroblasts. Glycosylation of glycolipids was normal in mucolipidosis fibroblasts. (15 refs.)

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2122 **DE GROOT, C. J.; LUIT-DE HAAN, G.; HULSTAERT, C. E.; & *HOOMES, F. A.** A patient with severe neurologic symptoms and acetoacetyl-CoA thiolase deficiency. *Pediatric Research*, 11(10):1112-1116, 1977.

Enzyme kinetics of cytosolic acetoacetyl-CoA thiolase were studied in normal human liver and in liver, subcutaneous adipose tissue, and cultured fibroblasts of a patient with severe neurologic symptoms (psychomotor retardation, muscle hypotonia, absence of language development). The activity of the patient's enzyme was 14.0μmol/min-g (w/w), which is in the low-normal range (48.7±20.4μmol/min-g (w/w), n=6). The ratio of the mitochondrial thiolase over the cytosolic thiolase was significantly increased, and the mitochondrial thiolase showed aberrant kinetic behavior. Increased inhibition of the cytosolic acetoacetyl-CoA thiolase by CoA was found with a 2-fold increase of the apparent K_m for acetoacetyl-CoA and a decreased utilization of the substrate. Increased deposition of glycogen in the hepatocytes and the occurrence of lipofuscin-like granules in the liver were found in liver-morphology studies. Ketone bodies may play a major role in the CNS by providing precursors for myelin syntheses during myelination, but the relationship between the biological and clinical abnormalities in this case remains unclear. An inborn error of metabolism is probably the cause of the altered kinetic properties of the cytosolic aceto-acetyl-CoA thiolase. (43 refs.)

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2123 **ROSENBLATT, DAVID S.; & ERBE, RICHARD W.** Methylenetetrahydrofolate reductase in cultured human cells. I. Growth and metabolic studies. *Pediatric Research*, 11(11):1137-1141, 1977.

The factors that affect methylenetetrahydrofolate (methylene-H^4 PteGlu) reductase activity in cultured human cells were studied. Reductase activity was demonstrable in extracts of cultured human skin fibroblasts, lymphoblasts, and amniotic fluid cells, showing similarities in specific activity, pH optimum, and nuclear-to-cytoplasmic-activity ratio. Maximum reaction velocity was observed at pH 6.3 in all 3 cell types. From 83 percent to 94 percent of enzymatic activity was located in the extranuclear portion of all 3 cell types. Activity was not substantially affected by growth of lymphoblasts, either in Eagle's minimum essential medium (MEM) supplemented with homocysteine alone, or with additional hydroxocobalamin and folic acid, or in media containing a 5-fold increase of methionine concentration. Activity varied little when confluent fibroblast cells were exposed to media deficient in or supplemented with varying amounts and combinations of methionine, homocysteine, folic acid, and cobalamin. The addition of purified S-adenosyl-methionine to reaction mixtures of human fibroblasts or of rat liver markedly inhibited reductase activity. Sensitivity to S-adenosylmethionine inhibition and insensitivity to varied concentrations of methionine, homocysteine, folic acid, and cobalamin indicated similarities between reductase activities in mammalian liver and fibroblasts. These similarities suggest that cultured fibroblasts may provide a valid system for studying the regulation of S-methyl-H^4 PteGlu levels. The marked decrease of reductase activity in both liver and fibroblasts in methylene H^4 PteGlu reductase deficiency suggests also that the enzyme is genetically unique. Studies of fibroblasts should thus be useful in characterizing the mutant enzyme activity in inborn errors of folate metabolism. (35 refs.)

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2124 **ROSENBLATT, DAVID S.; & ERBE, RICHARD W.** Methylenetetrahydrofolate reductase in cultured human cells. II. Genetic and biochemical studies of methylenetetrahydrofolate reductase deficiency. *Pediatric Research*, 11(11):1141-1143, 1977.

Genetic and biochemical studies of methylenetetrahydrofolate (methylene-H^4 PteGlu) reductase activities in extracts of fibroblasts from 4 patients suggested that mutant reductase in the 3 families represented is due to different alleles. Studies of extracts of fibroblasts from patient CP and his parents showed 20 percent and about 50 percent of normal activity, respectively, which suggested that reductase deficiency is inherited in a Mendelian autosomal recessive pattern. Re-

ductase activities in extracts of both normal and reductase-deficient cells were low and variable during logarithmic growth and higher in confluent cultures. Activities were 19 percent and 14 percent of normal in fibroblasts from patient LM and BM, respectively. Heat inactivation of reductase activity at 55° in a standard reaction mixture lacking 5-methyl-H^4PteGlu substrate resulted in a decrease in activity to 31 percent and 22 percent in 2 unrelated normal controls, respectively, and to 22 percent and 38 percent at first and then to values similar to controls in patients LM and BM, respectively, in repeat experiments. Reductase activity was rapidly and exponentially inactivated in cells of patient CP and was completely but less rapidly inactivated in cells of patient WMa. Findings indicated that the observed alteration in thermostability in patients CP and WMa may be based upon mutationally induced structural defect in the aporeductase, presumably reflecting reduced ability to bind the flavin-adenine dinucleotide cofactor. (18 refs.)

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2125 MANNIELLO, ROBERT L.; SCHULMAN, JOSEPH D.; & *FARRELL, PHILIP M. Amino acid metabolism in dysmature newborn rats—possible explanation of the antihypoglycemic effect of prenatal glucocorticoids. *Pediatric Research*, 11(11):1165-1166, 1977. (Letter)

The possible relationship between the protective effect of prenatal glucocorticoid treatment and the availability of utilization of gluconeogenic substrates was studied in dysmature or small-for-gestational-age rat pups. Plasma amino acid profiles determined at birth and at 2-4 hours of age in untreated and treated dysmature pups were presented. Findings suggested that the reduced tendency to develop hypoglycemia in corticosteroid-treated dysmature rat pups seems to be associated with both greater availability and increased utilization of glucogeneic amino acids. The steroid hormone may act both to increase the supply of gluconeogenic substrate and to stimulate enzymes essential for gluconeogenesis. (4 refs.)

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2126 BUTTERWORTH, J.; & GUY, G. J. α-L-fucosidase of human skin fibroblasts and amniotic fluid cells in tissue culture. *Clinical Genetics*, 12(5):297-302, 1977.

The activity of alpha-L-fucosidase (ALF), the enzyme deficient in fucosidosis, was assayed in cultured amniotic fluid cells and in skin fibroblasts. ALF activity was higher in amniotic fluid cells than in skin fibroblasts. Enzyme activity was higher in early passages of amniotic fluid cells than in later passages, while passage did not affect activity in skin fibroblasts. ALF activity fell on subculture and rose again at confluency in both cell types. Primary amniotic fluid is more useful in antenatal diagnosis than cells from later passages. (16 refs.)

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2127 MACFAUL, R.; & GRANT, D. B. Early detection of congenital hypothyroidism. *Archives of Disease in Children*, 52(2):87-88, 1977.

Data from the available literature on the frequency of hypothyroid symptoms within the first month and on intelligence in infants with congenital hypothyroidism treated at or before 6 weeks and between 7 and 12 weeks of age are presented. A review of results indicates that early recognition and treatment of congenital hypothyroidism will give a better progonosis, particularly in cases of subnormality, and will reduce the incidence and severity of later handicap. Awareness of the more common, less impressive symptoms (inactivity, feeding difficulties, constipation, and slow weight gain) and of persistent jaundice in about one-third of the cases will lead to earlier diagnosis and treatment. Estimations of thyrotrophin (TSH) in capillary blood samples in suspected cases and of plasma thyroxine to confirm the diagnosis are recommended. (11 refs.) (In an addendum, stemming from the observations of Dussault et al. that TSH screening will not detect some cases of neonatal hypothyroidism, it is recommended that plasma thyroxine assay should be used.)

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2128 DELANGE, F.; CAMUS, M.; WINKLER, M.; DODION, J.; & ERMANS, A. Serum thyrotrophin determination on day 5 of life as screening procedure for congenital hypothyroidism. *Archives of Disease in Childhood,* 52(2):89-96, 1977.

Thyrotrophin (TSH) levels in cord blood on day 5 of life in 327 newborns were recorded and determinations of cord blood thyroxine (T4) levels in 273 of the infants studied to define the optimum conditions of screening for congenital hypothyroidism by means of TSH assays. In 327 newborns cord blood T4 was 11.8±0.4μg/100ml(SEM)(151.9±5.1nmol/l), and serum TSH was 6.7±1.0μU/ml. On the fifth day of life, the TSH level was 3.7±1.0μU/ml lower than at birth ($p<0.001$), with 99.4 percent of the values less than 12μU/ml, showing a smaller scattering of values. TSH levels up to a normal limit of 12μU/ml at day 5 were used as a screening procedure. The TSH levels in 14 of 1,805 newborns (0.8 percent) exceeded the upper limit and were confirmed in 3 infants who received the diagnosis of hypothyroidism. High TSH levels were detected in 3 other hypothyroid infants not in the screening program. Results indicate that the level of TSH measured on the fifth day of life is a suitable parameter for systematic screening for hypothyroidism in newborns. (52 refs.)

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2129 Heterozygote advantage – and disadvantage? *Lancet,* 1(8015):786-787, 1977. (Editorial)

Few examples of heterozygous advantage have been demonstrated in man. One example is the sickle-cell gene, which confers considerable, heterozygous advantage in malarial areas, because the heterozygote's hemoglobin is not acceptable to the malarial parasite. Phenylketonuria has the advantage of accurate heterozygote detection by biochemical means, although there has been little evidence of biological advantage to the heterozygote. Many conflicting reports exist as to the relationship of phenylketonuria to fetal loss, ranging from decreased fetal loss to mothers of phenylketonuric children to high fetal loss in such mothers. Drs. Ford and Berman have reported an association between intellectual strengths and weaknesses and heterozygosity for phenylketonuria and hyperphenylalaninemia. Further study of the effect of the phenylketonuria gene is desirable, and a systematic study of a wide range of clinical effects in families with known autosomal recessive conditions is called for.

2130 FORD, ROBIN C.; & BERMAN, JULIAN L. Phenylalanine metabolism and intellectual functioning among carriers of phenylketonuria and hyperphenylalaninemia. *Lancet,* 1(8015):767-770, 1977.

The hypothesis that there is a relationship between intellectual functioning and changes in blood phenylalanine that accompany a phenylalanine loading given to carriers for the phenylalaninemias was explored. Ss included 115 parents from 63 families containing a phenylketonuric or hyperphenylalaninemic child, 40 of their children shown by phenylalanine tolerance to be carriers, and 24 of their normal children defined by the same criteria. All Ss were given a phenylalanine tolerance test and an individual Wechsler intelligence test. The characteristic early rise in phenylalanine within 2 hours of the load was evident in the parent and offspring carrier groups. One significant linear relationship between the biochemical and intellectual measurements with an $R = 0.73$ and significance at the <0.05 level was indicated by the canonical correlation analysis for the 115 Ss in the parent group. This estimate suggests that the 2-hour phenylalanine concentration is strongly correlated positively with performance-scale IQ scores, and negatively with verbal-scale IQ scores. In the correlation matrix for the 115 parents, fasting phenylalanine values were positively associated with IQ, whereas values during the loading were negatively associated with IQ. There were no significant correlation coefficients among mothers of hyperphenylalaninemic children. The evidence suggests that response to a phenylalanine load is associated with intellectual strengths and weaknesses for carriers of phenylketonuria and phenylalaninemia. (4 refs.)

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2131 **ILLIG, RUTH; & GITZELMANN, RICHARD.** Screening for congenital hypothyroidism. *Journal of Pediatrics*, 91(2):348-349, 1977. (Letter)

Using a radioimmunoassay of thyroid-stimulating hormone (TSH) adapted to dried blood spotted on filter paper, 3 of 5,177 infants routinely tested on the fifth day of life were found to have primary hypothyroidism. There was minimal need for recall testing, and no false positive results were obtained. Although the American Thyroid Association estimates that TSH screening is far more costly than thyroxine screening, the cost of the 2 radioimmunoassays is about equal. Since retesting and recall are lower in TSH screening, costs of detection by thyroxine screening should considerably exceed those incurred by TSH screening. As a result of its high recall rate, thyroxine screening creates unnecessary anxiety in infants who must be retested and may create unnecessary costs. TSH testing appears to be more appropriate for mass screening of newborn infants. (7 refs.)

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2132 **REZVANI, IRAJ; DIGEORGE, ANGELO M.; & COTE, MARY L.** Primary hypothyroidism in cystinosis. *Journal of Pediatrics*, 91(2):340-341, 1977. (Letter)

Thyroid function was evaluated in 3 patients with cystinosis, and all were found to be hypothyroid. Elevated serum concentration of thyroid-stimulating hormone (TSH) in all 3 patients and an exaggerated response of TSH to infusion of thyrotropin-releasing hormone in one patient indicate that the pituitary thyrotrophs are functional and the hypothalamic-pituitary unit is intact in these patients. These findings support the notion that progressive destruction of the thyroid gland with gradual loss of thyroid function is part of the natural history of childhood cystinosis. Since the hypothyroidism results from primary destruction of the thyroid gland, measurement of serum concentrations of TSH is the single most sensitive test for the diagnosis of primary thyroid failure in this condition. (4 refs.)

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2133 **PARKER, CHARLES E.; & *LANDING, BENJAMIN H.** Coincidence of Fahr disease and phenylketonuria. *Journal of Pediatrics*, 91(2):273-276, 1977.

Despite early detection and treatment, a child with phenylketonuria (PKU) showed delayed development and seizures and died at 17 months of age. At autopsy, the brain showed ventricular dilatation and extensive cystic degeneration. Microscopic examination showed extensive vascular calcinosis typical of Fahr disease, with degeneration of white matter, astrocytic gliosis, and focal spongy degeneration of basal ganglia and brainstem. Microscopic examination of the heart showed extensive vacuolation of myocardial fibers and vacuolar swelling of Purkinje fiber cytoplasm. The liver had cytoplasmic vacuolation of hepatocytes and portal fibrosis. Since cultured fibroblasts from the patient's parents had normal dihydropteridine reductase (DHPR) levels, it is believed that the presence of Fahr disease, rather than DHPR deficiency, accounts for the apparent failure of response of PKU to adequate management. (29 refs.)

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2134 **SPIELBERG, STEPHEN P.; KRAMER, LLOYD I.; GOODMAN, STEPHEN I.; BUTLER, JEAN; TIETZE, FRANK; QUINN, PATRICIA; & SCHULMAN, JOSEPH D.** 5-Oxoprolinuria: biochemical observations and case report. *Journal of Pediatrics*, 91(2):237-241, 1977.

Clinical and biochemical data of an infant with 5-oxoprolinuria (pyroglutamic aciduria) are presented. Shortly after birth the infant developed hemolysis and metabolic acidosis. Compensated hemolytic anemia persisted at 14 months of age, and the patient was treated with alkalinizing agents for correction of acidosis. Biochemical studies revealed a deficiency of glutathione synthetase activity in erythrocytes, leukocyytes, and cultured skin fibroblasts from the patient, associated with a decrease in the glutathione

content of these cells. Studies of glutathione synthetase kinetics in the infant's parents and in 2 other patients with 5-oxoprolinuria suggest that the disease is inherited in an autosomal recessive manner. The patient has had normal growth and development, with no evidence of neurological deficit, cataracts, or cognitive impairment. (23 refs.)

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2135 ROMEO, GIOVANNI; BORRONE, CARLA; GATTI, ROSANNA; & DURAND, PAOLO. Fucosidosis in Calabria: founder effect or high gene frequency? *Lancet,* 1(8007):368-369, 1977. (Letter)

It has been found that 2 sibships reported as having fucosidosis, one set reported in 1966 who died and one set reported in 1973 who survived, are related through common ancestors. The clinical heterogeneity of the disease in the same pedigree, for which no genetic explanation has been found, makes this finding important. A similar situation involves 2 children with fucosidosis and one with fucosidosis type-II disease. The origin of the 7 patients from the same small area of Calabria and the consanguinity of all the parents suggests a founder effect for the fucosidosis gene, but there are no comparative data on the incidence of this disorder in other parts of Calabria or of Southern Italy. A small and carefully programmed pilot study in properly selected areas of Calabria could help in establishing whether fucosidosis is a relevant problem for preventive medicine in this region and in deciding in favor of or against a founder effect. (10 refs.)

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2136 WOOD, STEPHEN. Genetic control of α-L-fucosidase. *Lancet,* 1(8007):368, 1977. (Letter)

A discussion of studies of plasma α-L-fucosidase activity in fucosidosis by Plafer and Price-Evans, Ng et al., and Turner et al. is presented, with emphasis upon the question of separate genetic control for the serum and leukocyte enzyme. Two pieces of evidence argue against this possibility: of the Fu2 and Fu1 phenotypes, a minor effect of the latter can be seen in both leukocytes and serum, with a reduction in mean enzyme activity to 76 and 70 percent, respectively, of the mean level observed in the Fu1 phenotype. Also, the low serum activity Fu1 phenotype has measurable effects upon the leukocyte enzyme even though the activity of the leukocyte enzyme is unaffected. It is possible that the disease fucosidosis, the polymorphism for serum x-L-fucosidase activity, and the leukocyte isoelectrophoretic polymorphism are all controlled by a variety of alleles at the same autosomal locus. (7 refs.)

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2137 BURMAN, DAVID; HOLTON, JOHN; & ALLEN, JOHN. Phenylketonuria masked by low protein feeds. *Archives of Disease in Childhood,* 52(4):328-330, 1977.

Two cases are described involving infants with phenylketonuria (PKU) requiring treatment who were fed on low protein milks and whose blood phenylalanine levels were below 1,200μmol/l (20mg/100ml) until given a phenylalanine challenge. Although phenylalanine content of mature breast milk may provide intakes similar to those used in treating PKU, diagnosis of PKU is unlikely to be missed if screening is carried out on the sixth or seventh day of life, since phenylalanine levels in breast milk are higher during the first week. All forms accompanying screening tests should state the milk feeds. Initial phenylalanine levels above 360μmol/l (6mg/100ml) in the absence of associated tyrosinemia require careful follow-up, particularly if the infant is fed with breast milk or a low protein milk. (7 refs.)

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2138 COHEN, DONALD J.; & YOUNG, J. GERALD. Neurochemistry and child psychiatry. *Journal of the American Academy of Child Psychiatry,* 16(3):353-411, 1977.

The growing field of central nervous system metabolic research and its applications in clinical research with psychotic children are described. The normal functioning of the brain depends on the integration of the synthesis, storage, release, and inactivation of neurotransmitters localized in different brain structures and pathways. Clinical research has focused on 2 types of neurotransmitters, the catecholamines and the indoleamines. Dopamine, serotonin, and acetylcholine are some of the neurotransmitters implicated in various neurological and psychiatric diseases and in a broad range of normal physiological processes. Correlations between metabolic and behavioral dimensions are studied by measuring levels of neurotransmitters, metabolites, and enzymes in blood, cerebrospinal fluid, and urine. Serious methodological problems need to be considered when biological research is interpreted in the field of child psychiatry; however, neurochemical research in general, and studies of neurotransmitter metabolism in particular, offer promise for clarification of some severe behavioral and developmental disorders of childhood and for understanding the pharmacodynamics of commonly used drugs. (276 refs.)

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2139 **SILVERSTRONI, EZIO; & BIANCO, IDA.** Screening for thalassaemia. *Lancet*, 1(8021):1100-1101, 1977. (Letter)

Since October, 1975, the Microcythaemia Centre of Rome has conducted a screening campaign for thalassemia carriers among intermediate school students. The strategy consists of 4 steps: 1) testing of all samples for decreased osmotic fragility and/or altered red cell morphology (indices which are normal in only 2 percent of thalassemia carriers); 2) full blood study on all samples singled out in the first step; 3) Hb electrophoresis and assay of Hb fractions by microelectorphoresis; and 4) examination of families of students classified after step 3 as thalassemia carriers. This procedure allows a physician, three technicians, and an assistant to do a complete examination of 300 blood samples each day. (2 refs.)

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2140 **TANAKA, K.; MANTAGOS, S.; GENEL, M.; SEASHORE, M. R.; BILLINGS, B. A.; & BARETZ, B. H.** New defect in fatty-acid metabolism with hypoglycemia and organic aciduria. *Lancet*, 2(8045):987, 1977. (Letter)

A 4.5-year-old girl who had had several episodes of severe hypoglycemia associated with lethargy (in 2 instances progressing to coma) and mild infections has been demonstrated to have a deficiency of butyryl CoA dehydrogenase. Although early investigations were unable to determine the cause of the hypoglycemia, aminoacid analysis did reveal an excess of urinary glycine. Urine specimens were tested for organic acids and short-chain fatty acids. Irregularities were noted in the urinary organic acid levels; the only major short-chain fatty acid detected was hexanoic acid which is not detectable in normal urine. The persistence of the patient's metabolic changes and the early neonatal death of a sibling suggest a genetic origin. The urinary metabolites suggest a deficiency of butyryl CoA dehydrogenase; skin fibroblast cultures are now being analyzed to confirm this deficiency. (14 refs.)

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2141 **BRYAN, E. M.** IgG deficiency in association with placental oedema. *Early Human Development*, 1(2):133-144, 1977.

The human fetus normally receives antibodies from the mother through placental transfer in the form of immunoglobulin G (IgG). Deficiency of IgG in the newborn is rare in the absence of maternal hypogammaglobulinemia. However, in 3 other conditions—the donor twin in the fetofetal transfusion syndrome (7 cases), rhesus hydrops fetalis (1 case), and congenital hepatic disease (1 case) — low IgG cord blood levels were also found. Since each of these conditions is associated with placental edema, it is possible that the edema may interfere with normal maternofetal placental transfer. (40 refs.)

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2142 **REY, FRANCOISE; BLANDIN-SAVOJA, FELICIENNE; & REY, JEAN.** Atypical phenylketonuria with normal dihydropteridine reductase activity. *New England Journal of Medicine,* 295(20):1138-1139, 1976. (Letter)

Results of the measurement of dihydropteridine reductase (DHPR) activities in an atypical new variant of phenylketonuria with a low level of biopterin derivative cofactors are reported. Enzymatic activities were measured on a liver needle biopsy sample, and DHPR, assayed by a direct spectrophotometric method, was in the normal range (61.2nmol of NADH oxidized per minute per milligram of protein). The patient exhibited 49.1 units hydroxylase activity, the apparent Km value for phenylalanine being 0.35×10^{-3} molar. (6 refs.)

2143 ***GARNICA, ADOLFO; DESROSIERS, PAUL; SARGENT, TRIGG; & **GIORGIO, ANTHONY A.** Methylamalonic aciduria and hypoglycemia. *New England Journal of Medicine,* 295(20):1136-1137, 1976. (Letter)

Dr. Garnica and associates describe 3 cases of methylmalonic aciduria in male children in which symptomatology is intermittent and not severe, and in which only one child was mildly to moderately MR. All cases are also different from classic methylmalonic aciduria in that less than 150mg of methylmalonic acid was excreted daily. In addition, serum and urine levels of methylmalonic acid may be raised by protein loading and lowered with cyanocobalamin injection. Although 2 of the patients were referred because of hypoglycemia, which has been associated with methylmalonic aciduria, it seems likely that the primary defect in these children is one of deoxyadenosylcobalamin synthesis rather than a deficiency of methylmalonyl-coenzyme A racemase or mutase. Dr. Giorgio replies that a possible explanation for the hypoglycemia is impaired pyruvate carboxylase activity. But other alkylacyl CoA derivatives functioning as allosteric activators of pyruvate carboxylase can oppose the inhibitory effect of methylmalonyl CoA. Differing degrees of accumulation of these intermediates may account for the variable occurrence of hypoglycemia in congenital methylmalonic aciduria. (7 refs.)

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2144 **KATO, TOMOAKI; TANAKA, EICHI; & HORISAWA, SETSUKO.** Hyperdibasicaminoaciduria and hyperammonemia in familial protein intolerance. *American Journal of Diseases of Children,* 130(12):1340-1344, 1976.

A remarkably reduced capability for intestinal absorption of lysine and arginine was found with oral amino acid loading tests performed on a 3-year-old boy with hyperdibasicaminoaciduria and hyperammonemia, who displayed the characteristics of familial protein intolerance (FPI). The condition is characterized by failure to thrive, vomiting and diarrhea, severe aversion to foods rich in protein, neutropenia and thrombocytopenia, hepatosplenomegaly, and growth retardation or MR. In contrast to 6 control children and 6 cystinuric patients, the patient demonstrated only moderately elevated urinary excretion and renal clearance of dibasic amino acids and conspicuously decreased serum concentration of lysine, arginine, and ornithine. A defect in the intestinal absorption of arginine and ornithine is hypothesized which in turn may cause the impaired ammonia metabolism of FPI. (19 refs.)

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2145 **LINDERKAMP, O.; SCHAUB, J.; & RIEGEL, K. P.** Hypervolemia in phenylketonuria. *Lancet,* 2(8041):772, 1977. (Letter)

The measurement of blood volume in 9 untreated infants and children with phenylketonuria (PKU) or hyperphenylalaninemia showed normal blood

volume in 4 infants aged 2-4 weeks, moderately increased volume in 2 infants aged 5 weeks and 8 weeks, and considerably increased volume in the older infants and children. The high concentration of phenylalanine in the infants competitively inhibit the conversion of tyrosine to L-dopa by tyrosine hydroxylase and thereby reduce formation of catecholamines. PKU may have a similar effect to alpha-adrenergic blocking agents, which also increase the blood volume. The increased hypervolemia in the older infants and children suggests an age-dependent effect, either of PKU on catecholamine formation or of catecholamines on the blood volume. (7 refs.)

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2146 **PENNOCK, C. A.; & BARNES, I. C.** The mucopolysaccharidoses. *Journal of Medical Genetics*, 13(3):169-181, 1976.

The enzyme defects in the group of inherited mucopolysaccharidoses are reviewed. The classification of the genetic mucopolysaccharidoses, the nomenclature and structure of the glycosaminoglycans (GAG), urinary excretion of GAG, the pathogenesis of the mucopolysaccharidoses, antenatal diagnosis, and lysosomal enzymes and GAG degradation are discussed. The identification of the enzyme defects in the mucopolysaccharidoses is important for developing enzyme assays giving unequivocal diagnosis of the different mucopolysaccharidoses, for improving intrauterine diagnosis, and for developing enzyme replacement therapy. Until suitable enzyme assays are available, urine analysis will retain a significant role in diagnosis, coupled with fibroblast uptake studies (labeled sulfate uptake and cross correction). (144 refs.)

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2147 **DOXIADIS, S. A.; & LAPATSANIS, P. D.** 1α-Hydroxyvitamin D in neonatal hypocalcaemia. *Lancet*, 1(8008):426, 1977. (Letter)

Oral administration of 1α-hydroxyvitamin D_3 (1α-OHD_3) produced a beneficial effect on serum calcium and on the heart rate in a newborn with protracted neonatal hypocalcemia. The infant, born at 35 weeks' gestation with a birthweight of 2300g, started twitching on day 5 after birth, and a low serum calcium level was found (5.4mg/dl). The value rose to 7mg/dl following 48-hour intravenous calcium administration (total dose 200mg calcium ion). The newborn was then given the same daily amount of calcium ion by mouth and 300 I.U. of vitamin D, but the serum calcium remained low (6-6.5mg/dl), and the heart rate was 200 beats/minute. Oral administration of 1.5ng per day of 1α-OHD_3 was begun on day 14 and continued for 8 days. Serum calcium rose gradually to 8.6mg/dl and remained normal when treatment was discontinued, and elevated serum phosphorus values and the heart rate fell to normal. (3 refs.)

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2148 **VAN DER HEIDEN, C.** Phenylalanine hydroxylation in phenylketonuria. *Lancet*, 1(8008):422, 1977. (Letter)

Enzyme studies show that the genetic defect in phenylketonuria (PKU) can be located at several steps in the phenylalanine hydroxylation system, so the diagnostic value of phenylalanine hydroxylase alone in the establishment of PKU is controversial. Using the method applied in their studies in cultured fibroblasts, Hoffbauer et al. measured phenylalanine hydroxylase activities in the plasma of controls and PKU patients, and concluded that PKU can be diagnosed by enzyme activity measurements in plasma. However, the mean values and standard deviation calculated for the whole group of PKU patients and for the controls do not warrant this conclusion. (2 refs.)

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2149 **DAVIES, M.; HILL, L. F.; TAYLOR, C. M.; & STANBURY, S. W.** 1,25-Dihydroxycholecalciferol in hypoparathyroidism. *Lancet*, 1(8002):55-59, 1977.

Eight patients with hypoparathyroidism were treated successfully with 1,25-dihydroxycholecalciferol (1,25-DHCC) (0.25-1.0μg/day) for

4-24 months. A normal serum calcium level was restored in 10-57 days, but to achieve this an oral calcium supplement (2.4-3.2g/day) was necessary in four patients, and a fifth was receiving supplementary calcium (0.8g/day) when 1,25-DHCC was started. Treatment resulted in a lowering of the serum phosphorus in all patients, but values remained high in three, and the renal tubular reabsorption of phosphate returned to normal in only two of the eight patients. Three episodes of hypercalcemia occurring in two patients during the collective treatment period of 120 months responded quickly to withdrawal of therapy. Therapy with 1,25-DHCC in hypoparathyroidism appears to be practicable and gives a more predictable response than conventional methods. Provided that an adequate calcium intake is given, the response to treatment should be more rapid than with vitamin D. (15 refs.)

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2150 ***MACE, JOHN W.; **GOODMAN, STEVEN, I.; CENTERWALL, WILLARD R.; & CHINNOCK, ROBERT F.** The child with an unusual odor: a clinical resume. *Clinical Pediatrics*, 15(1):57-62, 1976.

A group of metabolic disorders leading to unusual odors of the body or urine exists that constitutes a sizable portion of the acute life-threatening illnesses of infancy. Diabetic ketoacidosis, probably the most common disorder in the group, gives rise to a sweet or fruity odor. Phenylketonuria, one of the more common metabolic disorders of amino acid metabolism, is associated with a musty, mousy, or horsey odor. Maple syrup urine disease, named for a maple syrup-like odor of the urine, has numerous variants. Oasthouse urine disease, which is probably the same as the methionine malabsorption syndrome, is characterized by a dried celery or yeast-like odor of the urine. Two metabolic errors said to give rise to an odor of the body and urine much like that of sweaty feet are isovalericacidemia and a disorder attributed to the absence of the enzyme green acyl dehydrogenase. Cat's urine syndrome, fish odor syndrome, and the rancid butter syndrome have also been described. Early and accurate diagnosis of these disorders is imperative to prevent serious neurologic sequelae or even death. (34 refs.)

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2151 **LAWSON, M. S.; *CLAYTON, B. E.; DELVES, H. T.; & MITCHELL, J. D.** Evaluation of a new mineral and trace metal supplement for use with synthetic diets. *Archives of Disease in Childhood*, 52(1):62-67, 1977.

Seven children aged 23 days to 8.25 years with phenylketonuria (PKU) were given a new mineral mixture on their controlled low-phenylalanine diet, in which a combination of synthetic L-amino acids provided most of the protein requirements. Previous study had shown that their current diet was deficient in zinc (Zn), copper (CU), iron (Fe), and manganese (Mn). The new mixture which increased these trace metals has been evaluated by metabolic balance studies, in which the daily intake, excretion, and absorption were measured, and the percentages of daily intakes of Zn, Cu, Fe, and Mn absorbed and retained were calculated. The new mixture was shown to be satisfactory for all the metals except for Mn, which had to be reduced slightly. (14 refs.)

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2152 **WILCKEN, B.; YU, J. S.; & BROWN, D. A.** Natural history of Hartnup disease. *Archives of Disease in Childhood*, 52(1):38-40, 1977.

In testing 830,000 6-week-old babies in New South Wales, Hartnup disease was diagnosed in 12 children and 3 of their 15 siblings through urine screening. Hartnup disease is a disorder of both intestinal and renal tubular transport of amino acids, reportedly associated with a pellagra-like rash and ataxia. In this investigation it was diagnosed in babies with a constant gross aminoaciduria involving serine, threonine, glutamine, asparagine, alanine, valine, leucine,

isoleucine, phenylalanine, tyrosine, tryptophan, and histidine. A followup period of up to 8 years showed that the children had normal mental development, and heights were slightly below those expected. None of the children ever suffered from skin rashes or ataxia; the only clinical manifestations possibly related to Hartnup disease were 1 case of severe sunburn after mild exposure in a child temporarily off nicotinamide treatment, and one case of convulsions after mumps in a child who never received nicotinamide. Six children were treated with 25mg nicotinamide daily or weekly, treatment having been instituted solely upon the initiative of the clinician assigned to the patient. Clinical manifestations of Hartnup disease are rare in New South Wales. (7 refs.)

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2153 **SALLE, B. L.; DAVID, L.; CHOPARD, J. P.; GRAFMEYER, D. C.; & RENAUD, H.** Prevention of early neonatal hypocalcemia in low birth weight infants with continuous calcium infusion: effect on serum calcium, phosphorus, magnesium, and circulating immunoreactive parathyroid hormone and calcitonin. *Pediatric Research*, 11(12):1180-1185, 1977.

Examination of 41 premature infants during the first 48 hours of life seems to indicate that continuous calcium (CA) infusion does not depress parathyroid activity and could be useful in preventing neonatal hypocalcemia. Sixteen infants (group 1) received only glucose while the remaining 25 infants (group 2) received glucose with calcium gluconate (35mg/kg/D). No overall adverse effects were noted in group 2. In the first group serum CA decreased significantly during the first 24 hours of life, while levels remained steady in the second group and were significantly higher than levels in group one at hours 10-14 and 22-26. There was no change in either group in serum phosphorus levels. Serum magnesium levels were significantly higher in group 2 from 22-48 hours. Serum immunoreactive parathyroid hormone (IPTH) and immunoreactive calcitonin (ICT) increased from hours 1-3 with no difference between the two groups. Negative correlations between serum CA and serum ICT levels at 22-26 hours suggest that the elevated serum ICT levels have a depressive effect upon serum CA in low birthweight infants. The data also indicate that the hypercalcitoninemia which is observed during the neonatal period is not closely dependent upon the serum calcium level. (44 refs.)

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2154 **ROBINSON, B. H.; TAYLOR, J.; & SHERWOOD, W. G.** Deficiency of dihydrolipoyl dehydrogenase (a component of the pyruvate and alpha-ketoglutarate dehydrogenase complexes): a cause of congenital chronic lactic acidosis in infancy. *Pediatric Research*, 11(12):1198-1202, 1977.

A case in which the diagnosis of deficiency of the E_3 enzyme component in both pyruvate and x-ketoglutarate dehydrogenase complexes—dihydrolipoyl dehydrogenase deficiency—was confirmed post-mortem is described. A male child, the first born of consanguineous Caucasian first cousins, died of progressive neurologic deterioration and persistent metabolic acidosis at 7 months. Previous investigations indicated that the child had elevated pyruvate, lactate, and alpha-ketoglutarate as well as elevation of branched chain amino acids and occasional hypoglycemia. Prolonged therapy with thiamine (hydrochloride derivative 19/day for 4 weeks and the tetrahydrofurfural disulfide derivotive 500mg/day) was given for 6 weeks but the infants cause was progressive and unremitting. Tissues taken postmortem showed a deficiency in the activity of pyruvate dehydrogenase, dihydrolipoyl dehydrogenase, and alpha-ketoglutarate dehydrogenase complex in liver, muscle, kidney, and brain samples. Major autopsy findings were in the brain and included myelin loss and cavitation in discrete areas of the basal ganglia, thalami, and brain stem. Congenital lactic acidosis due to a severe defect in the pyruvate dehydrogenase complex for the first time has been shown to be due to the absence of the E_3 enzyme of the pyruvate dehydrogenase complex, dihydrolipoyl dehydrogenase. (40 refs.)

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2155 **PERRY, T. L.; URQUHART, N.; HANSEN, S.; & MANNER, O. A.** Studies of the glycine cleavage enzyme system in brain from infants with glycine encephalopathy. *Pediatric Research*, 11(12):1192-1197, 1977.

Glycine content and enzyme activity of the glycine cleavage system were analyzed in autopsied brain from 5 infants dying with glycine encephalopathy (GE), a form of nonketotic hyperglycinemia. This syndrome is distinguished from other forms by lethargy, intractable seizures, spasticity, MR, and usually by early death. Glycine content was elevated 2-8 fold, and glycine cleavage enzyme activity was undetectable in the autopsied brains, but was present at reduced levels in the livers. Prolonged dialysis failed to restore glycine cleavage enzyme activity in brain homogenates of GE patients, and these homogenates failed to inhibit enzyme activity when added to homogenates of control brains. Results of recombination experiments indicate that the enzyme defect in GE involves at least the second or H protein of the 4-protein glycine cleavage system. Glycine encephalopathy is probably caused by absence of glycine cleavage enzyme activity and marked elevation of glycine content in infantile brain. Since symptoms appear only after birth, the fetus may be protected by clearance of a firmly bound endogenous inhibitor of the glycine cleavage enzyme across the placenta. (35 refs.)

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2156 **ACHORD, DANIEL; BROT, FREDERICK; GONZALEZ-NORIEGA, ALFONSO; *SLY, WILLIAM; & STAHL, PHILLIP.** Human β-glucuronidase. II. Fate of infused human placental β-glucuronidase in the rate. *Pediatric Research*, 11(7):816-822, 1977.

Human placental beta-glucuronidase was identified in rat organs after infusion by its stability to thermal inactivation conditions which destroy endogenous rat enzyme. Infused enzyme cleared rapidly from rat plasma, localizing (50-60 percent of infused dose) primarily in the liver and spleen. Subcellular fractionation studies suggest that enzyme taken up by the liver was in lysozymes. Removal of abdominal viscera and interruption of portal circulation lengthened clearance time from plasma and allowed significant uptake by bone. It appears that placental beta-glucuronidase is cleared predominantly by organs with significant reticuloendothelial components. Enzyme half-disappearance times were 2.6 and 5.8 days, respectively, for liver and spleen. Periodate treatment of the placental enzyme had little or no effect on catalytic activity, but dramatically altered its clearance properties, converting it into a long circulating form of the enzyme. Delineation of cell specific receptors and organ localization of human enzymes such as beta-glucuronidase may help develop an enzyme replacement therapy in lysosomal storage disease. (30 refs.)

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2157 **FRANKEL, HARRY A.; GLASER, JANET H.; & *SLY, WILLIAM S.** Human β-glucuronidase. I. Recognition and uptake by animal fibroblasts suggests animal models for enzyme replacement studies. *Pediatric Research*, 11(7):811-816, 1977.

Fibroblasts were established from connective tissue from 9 different animal species and examined for their ability to take up human beta-glucuronidase (HBG). In order to measure the human enzyme in extracts containing nonhuman enzyme, thermal inactivation conditions that preferentially destroy animal beta-glucuronidase activities were determined. All fibroblast lines showed some HBG uptake capacity, but capacity varied over a 10-fold range. The uptake capacity of bovine fibroblasts resembled the high uptake capacity of human fibroblasts, while rat and hamster capacities were approximately half the level of human fibroblasts. Cultured rat fibroblasts resembled human fibroblasts in terms of their kinetics of uptake of high uptake (platelet) enzyme, their low turnover of incorporated enzyme, and their poor uptake of human placental enzyme. (18 refs.)

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2158 **WILLIAMS, D. M.; ATKIN, C. L.; FREENS, D. B.; & BRAY, P. F.** Menkes' Kinky Hair syndrome: studies of copper metabolism and long term copper therapy. *Pediatric Research,* 11(7):823-826, 1977.

Various methods of copper administration were tried with a 4-month-old boy with clinical manifestations of Menkes' kinky hair syndrome and reduced levels of plasma copper and ceruloplasmin. Oral copper did not alter levels of plasma copper, ceruloplasmin, or red cell copper. Intravenous copper infusion did not enhance copper absorption but did increase ceruloplasmin levels. Subcutaneous administration had the same effect, and after 2 months of subcutaneous treatment normal levels of plasma copper and ceruloplasmin were achieved, although there was no measurable improvement in the patient's clinical condition. Characteristic hair abnormalities persisted after 12 months of treatment. Plasma copper fell when subcutaneous copper was discontinued. Copper loss, primarily in the feces, exceeded copper intake at a time when plasma copper levels were stable. (16 refs.)

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2159 **PATRICK, A. D.; YOUNG, ELISABETH; KLEIJER, W. J.; & NIERMEIJER, M. F.** Prenatal diagnosis of Niemann-Pick disease type A using chromogenic substrate. *Lancet,* 2(8029):144, 1977. (Letter)

Niemann-Pick disease can be diagnosed reliably by sphingomyelinase activity assay of separated leucocytes or cultured skin fibroblasts. However, the chromogenic sphingomyelin analogue 2-hexadecanoylamino-4-nitrophenyl-phosphorylcholine (HNP) has been shown to be a convenient alternative substrate for the diagnosis of Niemann-Pick disease type A and the demonstration of the heterozygosity of their parents. HNP was used to detect an affected fetus in a pregnancy of non-consanguineous Dutch parents; their first child had Niemann-Pick disease type A. Cultured amniotic cells from the pregnancy at risk (16 weeks) for Niemann-Pick disease hydrolysed HNP to only 4.5 percent of the mean control value. These results, indicating an affected homozygous fetus, were substantiated by detection of sphingomyelinase deficiency. The parents requested an abortion which was done by prostaglandin induction in the 20th week of pregnancy. (5 refs.)

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2160 **BELCHETZ, PAUL E.; CRAWLEY, J.C.W.; BRAIDMAN, ISOBEL P.; & GREGORIADIS, GREGORY.** Treatment of Gaucher's disease with liposome-entrapped glucocerebroside: β-glucosidase. *Lancet,* 2(8029):116-117, 1977.

A 25-year-old woman with Gaucher's disease who had had a previous splenectomy and liver resection was injected with liposomes containing human glucocerebroside: β-glucosidase. At the time of injection, the abdomen was protruberant, and there was massive hepatomegaly, the right lobe extending below the level of the umbilicus and the left deep into the left iliac fossa. After 13 months of treatment the lower border of the right hepatic lobe had moved up 3 cm, and the left lobe had shrunk. Reduction in the size of the liver was associated with relief of pressure symptoms in the left lower abdomen. Body scans suggested improvement in function of the reticuloendothelial system. (10 refs.)

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2161 **SCHULTE, MICHAEL-JORG; & LENZ, WIDUKIND.** Fatal sorbitol infusion in patient with fructose-sorbitol intolerance. *Lancet,* 2(8030):188, 1977. (Letter)

Termination of a mole pregnancy with prostaglandins and curettage in a woman with fructose intolerance resulted in her death after the patient was given sorbitol (which metabolizes directly to fructose) with actinomycin solution. Severe liver parenchymal damage and renal tubular insufficiency developed, probably induced by toxic action of the metabolite fructose-1-phosphate. Fructose intolerance is a rare metabolic disease due to a nearly complete lack of 1-phosphofructaldolase activity. Fructose intolerance was also

demonstrated in other members of her family. The second child had died at age 7 months with the signs typical of fructose intolerance (vomiting of blood, hepatomegaly, jaundice). Other deaths have also been attributed to sorbitol infusions in persons with fructose intolerance. Since such cases are rarely detected, clinics should eliminate fructose and sorbitol containing solutions from their stock of infusion solutions. (7 refs.)

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2162 HUGHES, IEUAN A.; WILLIAMS, D. H.; & BIRCH, A. D. Early diagnosis of congenital adrenal hyperplasia. *Lancet*, 1(8009):487, 1977. (Letter)

Serum concentrations of 17-OH-progesterone (17-OHP) were measured serially during the early newborn period in a male infant with a family history of congenital adrenal hyperplasia. At birth, clinical examination was entirely normal. The raised concentrations in cord blood and during the first few hours of life presumably reflected the placental production of 17-OHP. Thereafter, the concentrations fell rapidly to normal, and a diagnosis of congenital adrenal hyperplasia secondary to C21-hydroxylase deficiency was excluded. The results contrasted strikingly with those obtained in the case of a male infant with congenital adrenal hyperplasia. In that infant, raised 17-OHP concentrations persisted after birth, and biochemical confirmation of congenital adrenal hyperplasia was substantiated further by increased urinary excretion of 17-oxosteroids and pregnanetriol. The 17-OHP assay should be of value in the early diagnosis of congenital adrenal hyperplasia due to C21-hydroxylase deficiency, especially in newborn males with a normal clinical examination at birth.

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2163 ARCHER, G. J.; & MONIE, R. D. H. Wilson's disease and chronic active hepatitis. *Lancet*, 1(8009):486-487, 1977. (Letter)

A 16-year-old girl presented with an 8-week history of ascites, with no previous significant history. Her 18-year-old sister had been under treatment for 4 years with a diagnosis of chronic active hepatitis and was on steroids. Investigations of the index case revealed an elevated sedimentation rate and abnormal liver function tests. Screening for Wilson's disease gave positive results. The most reliable diagnostic finding appears to be a decreased serum-ceruloplasmin, since abnormalities of urinary copper excretion and hepatic copper content may be observed in other cases of chronic hepatitis. Despite its low incidence, Wilson's disease should be considered when dealing with young patients who present with chronic active hepatitis. (4 refs.)

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2164 CHAN, HELEN; BILLMEIER, G. J.; MOLINARY, SAMUEL V.; TUCKER, HUGH N.; SHIN, BAK-CHANG; SCHAFFER, AVA; & CAVALLO, KATIE. Prolonged coma and isoelectric electroencephalogram in a child with lysinuric protein intolerance. *Journal of Pediatrics*, 91(1):79-81, 1977.

Lysinuric protein intolerance is a rare condition causing MR by means of increased renal clearance, impaired intestinal absorption, and abnormal transport of dibasic amino acids into hepatocytes. A patient with this condition exhibited failure to thrive and protein aversion at the age of 20 months. Denver developmental screening revealed performance at the 27th month level at 41 months of age. When the patient was challenged with protein because his intermittent hyperammonemia, chronic low blood urea nitrogen, and failure to thrive suggested protein intolerance, he became comatose with decerebrate rigidity and registered an isoelectric EEG for 24 hours. The patient recovered after peritoneal dialysis and is on a restricted protein diet. Analysis of response to protein infusion did demonstrate increased renal clearance of dibasic amino acids in the presence of low plasma levels. There was also a concomitant increase of plasma alanine, glutamic acid, glycine, and serine. The child continues to exhibit growth failure, MR, hepatomegaly, and anemia. (9 refs.)

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2165 **LAMBERT, LYNN D.; & JOHANSON, ANN J.** Treatment of pseudohypoparathyroidism with oral vitamin D biweekly. *Journal of Pediatrics*, 90(4):654-656, 1977.

An adolescent boy with pseudophypoparathyroidism presented a major problem in therapy because of his persistent lack of compliance. Although 50,000 U of vitamin D or 0.6mg dihydrotachysterol daily were prescribed, the boy took his medication sporadically and often omitted it for several months. As a result, he frequently developed symptoms of hypocalcemia and occasionally of tetany. Management of the disease was accomplished by altering the oral dosage from daily to biweekly intervals. With oral doses of 1,000,000 to 1,500,000 vitamin D every 2 weeks for 3.5 months, the psuedohypoparathyroidism has been effectively controlled without hypercalcemia or hypercalciuria. (9 refs.)

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2166 **COHN, ROBERT; YANDRASITZ, JOHN R.; LANGE, BEVERLY; ROSENSTOCK, JEFFREY; GERSON, JAMES; & SEGAL, STANTON.** Isolation of Gaucher cells from bone marrow. *Journal of Pediatrics*, 90(4):596-598, 1977.

Sedimentation characteristics of Gaucher cells were investigated in bone marrow obtained from the total hip arthroplasty of an adolescent patient with Gaucher's disease. Using velocity sedimentation on a discontinuous gradient of bovine serum albumin, essentially pure fractions of Gaucher cells were collected by aspiration, and gradient centrifugation produced bands at every interface and a large red cell pellet. Bone marrow represents a readily available source of cells, which can be attained safely by aspiration. By isolating Gaucher cells from the heterogeneous bone marrow, cell population changes in storage pools and the success of enzyme replacement therapy can be assessed. (4 refs.)

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2167 **CEDERBAUM, STEPHEN D.; SHAW, KENNETH N. F.; & VALENTE, MARIO.** Hyperargininemia. *Journal of Pediatrics*, 90(4):569-573, 1977.

A 7.5-year-old boy of Ashkenazi Jewish background had exhibited progressive motor retardation, behavior disturbance, spasticity, and growth arrest from the age of 3. Plasma arginine on a self-selected low-protein diet was elevated (4.05mg/dl, nl 0.4 to 2.6), but urinary amino acid excretion was normal. Three hours after a meal providing 2 gm protein/kg body weight, plasma arginine concentration rose to 13.2mg/dl (5 times the upper limit of normal), dibasic aminoaciduria was observed, and blood ammonia concentration remained normal. Red blood cell arginase activity was < 1 percent of normal in this patient and was half normal in both parents, in 2 normal siblings, and in his paternal grandfather, suggesting an autosomal recessive pattern of inheritance of arginase deficiency. Since the diagnosis of hyperargininemia with red blood cell arginase deficiency was made fortuitously in this patient, it is suggested that urinary amino acid chromatography most commonly used in the study of developmentally disabled patients may fail to detect this metabolic error. A clinical picture of neurologic disorder with progressive spasticity, seizures, and MR may require a study of plasma amino acids. No direct relationship between the enzyme deficiency and the neurologic disease has been established, and the pathogenesis of hyperargininemia remains unknown. (22 refs.)

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2168 **SNYDERMAN, SELMA E.; SANSARICQ, CLAUDE; CHEN, WEN J.; NORTON, PATRICIA M.; & PHANSALKAR, SADASHIV V.** Argininemia. *Journal of Pediatrics*, 90(4):563-568, 1977.

Two cousins presented (one at 43 months old, the other at 4 years of age) with argininemia characterized by hyperactivity, MR, spasticity, ataxia, and repeated attacks of hyperammonemia. Sequelae of ammonia intoxication included bouts of vomiting followed by irritability, drowsiness, convulsions, and coma. Both these children and other cases observed exhibited marked spastic diplegia and some degree of cerebral atrophy. Elevated pretreatment levels of plasma arginine,

abnormal responses to arginine load, and absence of erythrocyte arginase activity indicated an arginase deficiency. Erythrocyte arginase activity was depressed in all 4 parents of these children, 2 grandparents, and 17 other family members, suggesting an autosomal recessive pattern of inheritance. The extreme spasticity noticed in these cases, which is uncharacteristic of other forms of congenital hyperammonemia, suggests that high arginine levels have a special detrimental effect on the central nervous system. Treatment with an essential amino acid mixture with limited total nitrogen intake controlled the hyperammonemia, reduced plasma arginine levels, and resulted in marked clinical improvement. Intelligence levels increased significantly following therapy, and both children are now approaching the normal range of function. (11 refs.)

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2169 **WALKER, P.; DUSSAULT, J. H.; HART, I. R.; LANGELIER, P.; & SZOTS, F.** Thyrotoxicosis detected in a mass-screening program for neonatal hypothyroidism: demonstration of placental transfer of an immunoglobulin with marked lipolytic activity. *Journal of Pediatrics*, 91(3):400-403, 1977.

Neonatal thyrotoxicosis was detected in an infant born to a mother with active Grave's disease and a strongly positive long-acting thyroid stimulator (LATS) activity. Radioimmunoassay of thyroxine in the eluate of filter paper blood spots on the fifth day of life revealed markedly elevated thyroxine concentrations (5.45ng/40μ1). Although maternal serum showed striking LATS activity in the McKenzie mouse bioassay, none was detectable in the infant, possibly because an insufficient amount of infant serum was used. Both infant and maternal serum reacted strongly in the lipolytic assay for LATS. Neonatal thyrotoxicosis in this infant was apparently secondary to placental transfer of a thyroid-stimulating immunoglobulin. (16 refs.)

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2170 **GREGERSEN, NIELS; BRANDT, NIELS JACOB; CHRISTENSEN, ERNST; GRON, IDA; RASMUSSEN, KARSTEN; & BRANDT, SVEN.** Glutaric aciduria: clinical and laboratory findings in two brothers. *Journal of Pediatrics*, 90(5):740-745, 1977.

Two brothers are described with a similar dystonic cerebral palsy who had urinary metabolic profiles dominated by glutaric acid. The neurological symptoms in both patients were characterized by an abnormal motor pattern with hyperkinetic involuntary movements described as dystonic extensor and flexor spasms. One patient is described as severely MR, but the other is mentally normal. In both of these patients, the excretion of glutaric acid in the urine amounted to several grams per day when none is normally found in the urine. The urinary excretion of beta-hydroxyglutaric acid and glutaconic acid was also increased. Impaired metabolism of glutaryl-CoA by leukocytes indicates that the patients probably suffer from an inborn error of lysine, tryptophan, and hydroxylysine metabolism. A defective oxidation of glutaryl-CoA to crotonyl-CoA, probably due to a deficiency of glutaryl-CoA dehydrogenase, is consistent with the biochemical findings in these patients. (19 refs.)

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2171 **GOODMAN, STEPHEN I.; NORENBERG, MICHAEL D.; SHIKES, ROBERT H.; BRESLICH, DIANA J.; & MOE, PAUL G.** Glutaric aciduria: biochemical and morphological considerations. *Journal of Pediatrics*, 90(5):746-750, 1977.

The biochemical and morphological characteristics of a patient with glutaric aciduria are described. The male infant was well until 7.5 mos when neurological deterioration began, leading eventually to MR, dystonia, and athetosis. Just before death aminoaciduria, alpha-amino adipic aciduria, and saccharopinuria were noted. In addition, glutaconic aciduria was greater than beta-hydroxyglutaric aciduria. Specimen of liver mitochondria did not oxidize glutaryl-CoA to glutaconyl-CoA, which substantiates deficiency of glutaryl-CoA dehydrogenase. Postmortem examination demon-

strated cerebral edema, ischemic neuronal changes, and striatal degeneration in the brain, as well as fatty infiltration in the liver, kidney, and myocardium. (23 refs.)

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2172 **VOGEL, RUTH; GAIFMAN, MIRIAM; & *NITZAN, MENACHEM.** Increased intracranial pressure in galactosemia. *Clinical Pediatrics*, 15(4):386-388, 1976.

A 6-month-old male infant was hospitalized for failure to thrive, increased vomiting, and a bulging fontanelle. Enzyme assay of erythrocytes for galactose-1-phosphate uridyl transferase showed no detectable activity. Both parents showed intermediate levels of the enzyme compatible with heterozygosity for galactosemia, whereas the sibling showed a normal value. Galactokinase activity was normal. A galactose-free formula was started, and the infant's general condition gradually improved. Intracranial hypertension in galactosemia may be caused by diffuse cerebral edema, which is the primary pathologic change seen in infants who have died with this disease. Increased intracranial pressure of galactosemia may result in irreversible brain damage. Diagnosis of galactosemia should be considered with any infant who has signs of increased intracranial pressure, hepatomegaly, and failure to thrive. (8 refs.)

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2173 **SHIN-BUEHRING, Y. S.; BEIER, T.; TAN, A.; OSANG, M.; & *SCHAUB, J.** The activity of galactose-1-phosphate uridyltransferase and galactokinase in human fetal organs. *Pediatric Research*, 11(10):1045-1051, 1977.

Developmental aspects of galactose-1-phosphate uridyltransferase and galactokinase were investigated by measuring the specific activities in liver, kidney, lung, spleen, heart, skeletal muscle, and brain of human fetuses at various gestational ages as well as in livers of children. Both transferase and galactokinase increased with gestational age to a maximal level at 28 weeks of 30.0 and 7.9 nmol/min/mg protein (units) in liver, 4.7 and 2.5 units in kidney, 6.0 and 4.0 units in lung, 6.7 and 2.9 units in spleen, 5.2 and 2.6 units in cardiac muscle, and 4.0 and 1.4 units in skeletal muscle, respectively. The activity in brain, on the other hand, remained quite constant, with 1.2 units in the case of transferase and 0.5 units in the case of galactokinase during this period. Galactokinase activity in fetal erythrocytes was approximately 4 times higher and the transferase activity approximately 30 percent higher than in adults. Characteristics of both enzymes, such as pH optima and substrate affinity, were studied. The extremely low binding affinity for galactose uridyltransferase of the liver of a galactosemic child may indicate that altered binding sites are responsible for classic galactosemia rather than a complete absence of the enzyme. (37 refs.)

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MEDICAL ASPECTS – Etiologic Groupings

Convulsive disorders

2174 **BARK, NIGEL.** Clonazepam in the treatment of epilepsy in handicapped patients. *British Journal of Mental Subnormality*, 23, Pt. 2(45):84-87, 1977.

Twenty female patients from centers for the MR (chronological age 6 to 41 years) suffering from myoclonic and akinetic epileptic seizures were treated with clonazepam for from 2 to 12 months, with an average of 6 months duration. Nineteen patients had clonazepam added to their usual anticonvulsant, starting with a dosage of 0.5mg twice daily, which was increased gradually once or twice a week to a maximum of 2mg 4 times a day. The results could only be assessed in 19 of the 20 patients in the study, since clonazepam had to be discontinued in one patient owing to undesirable side effects. Of the remaining 19 patients, seizures ceased or were reduced by 50 percent in 9, there was no significant change in seizure frequency in 7, and seizure frequency increased in 3. In 2 of these 3 patients, the increase in grand mal seizures appeared to be related more to the incidental administration of thioridazine than to the clonazepam. Clonazepam was most effective in myoclonic seizures. Side effects (mainly drowiness and hypersalivation) were frequent and, although not life-threatening, required the withdrawal of clonazepam in 5 cases. (15 refs.)

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2175 **NEALIS, JAMES G. T.; MCFADDEN, SAMUEL W.; ASNES, RUSSELL A.; & OUELLETTE, EILEEN M.** Routine skull roentgenograms in the management of simple febrile seizures. *Journal of Pediatrics*, 90(4):595-596, 1977.

A review of hospital records of 753 children between the ages of 6 months and 6 years who had been seen at one of 4 medical centers for simple febrile seizures revealed that skull roentgenograms had been performed on 489 of the children. All roentgenograms were normal. When a detailed history and physical examination suggested that a previously normal child had had a simple febrile convulsion, skull roentgenograms were of no diagnostic value. In view of the high cost of skull radiography and the unnecessary exposure to ionizing radiation, its use may not be justified in the management of patients with simple febrile seizures. (5 refs.)

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2176 **BERMAN, WULFRED; & JOHNSON, BURTON A.** The (?) value of routine skull radiography in clinical evaluation of children with recurrent convulsions. *Journal of Pediatrics*, 90(4):598-600, 1977.

Skull roentgenograms were performed as part of the routine work-up of 130 children admitted to an epilepsy clinic. Abnormal roentgenograms were present in 9 (6.9 percent) of the patients. Microcephaly and calvarial thickening were the most common abnormal findings; others included calcification, coronal synostosis, coronal diastasis, and traumatic defect of the skull. Normal roentgenograms were obtained from 68 of the 73 patients with grand mal seizures; 12 of the 14 children with myoclonic seizures; 5 of the 6 patients with psychomotor epilepsy; and 3 of 4 children with focal seizures. Few if any of these children benefited from routine skull roentgenography. The low incidence of positive radiologic findings suggests that radiologic examination of the skull is unwarranted in the absence of other signs of neurological dysfunction. (6 refs.)

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2177 **VAJDA, F.J.E.; SYMINGTON, F. R.; & BLADIN, P. F.** Rectal valproate in intractable status epilepticus. *Lancet*, 1(8007):359-360, 1977.

Two institutionalized MR patients with intractable tonic-seizure status epilepticus were given sodium valproate rectally. Both Ss were chronic epileptics whose medication had been omitted before their admission to hospital, where they both required assisted respiration and tracheostomy. The first patient, an 18-year-old girl, did not respond to parenteral diazepam, intravenous phenytoin, or intravenous sodium amylobarbitone. At first sodium valproate was given by vasogastric tube, but paralytic ileus developed. She was later given enemas containing 400mg of sodium valproate, which were continued for 5 days. The girl has made a remarkable recovery and has been seizure free for 15 months. The male patient, who also had a paralytic ileus, was given 600mg sodium valproate rectally every 6 hours. He also recovered, but later died of staphylococcal sepsis. These results suggest that rectal administration of sodium valproate may be a practical and effective way of treating status epilepticus when the oral route is not available or when other drugs have proved ineffective.

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2178 **SIMPSON, H.; HABEL, A. H.; & GEORGE, E. L.** Cerebrospinal fluid acid-base status and lactate and pyruvate concentrations after short (<30 minutes) first febrile convulsions in children. *Archives of Disease in Childhood*, 52(11):836-843, 1977.

The sudden increase in cerebral metabolic rate which has been shown to accompany major generalized convulsions quickly increases CSF lactate levels which may remain raised for several hours. The present results have shown that CSF lactate concentration and lactate/pyruvate ratios were not increased in the majority of the 29 infants and young children (9 months-4 years) studied within 24 hours after first-time short-duration febrile convulsions. Only 2 patients showed signs of cerebral hypoxia with an increase in both CSF lactate concentration and lactate/pyruvate ratio. Of these 2 cases, one had two brief grand mal seizures before sampling and the other had a tonic convulsion lasting less than 10 minutes. Both children had upper respiratory tract infections with unknown pathogens. It is concluded that hypoxic brain damage is unlikely to result from a short-duration febrile convulsion. (37 refs.)

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2179 **SIMPSON, H.; HABEL, A. H.; & GEORGE, E. L.** Cerebrospinal fluid acid-base status and lactate and pyruvate concentrations after convulsions of varied duration and aetiology in children. *Archives of Disease in Childhood*, 52(11):844-849, 1977.

Twenty-two infants and children (3 months-11 years) were examined after convulsions of varied duration and etiology. The degree of postulated cerebral hypoxia was measured by the determination of lactate and pyruvate concentrations and lactate/pyruvate ratios in the cerebrospinal fluid (CSF). Biochemical signs of cerebral hypoxia, measured between 3 and 18 hours after convulsive episodes, were found in 7 patients with prolonged (<30 minutes) or recurrent short convulsions. These signs were absent in patients with single short convulsions. Findings indicate that cerebral hypoxia and possible brain damage are hazards of prolonged or rapidly recurring short convulsions. (23 refs.)

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2180 **RUTTER, N; & SMALES, O.R.C.** Lumbar puncture in children with convulsions. *Lancet*, 2(8030):190-191, 1977. (Letter)

In investigating procedures used in children presenting with their first febrile convulsions, it was found that most university clinics performed lumbar puncture, blood sampling (for glucose, calcium, and phosphate), electroencephalography, and skull X-ray. In attemptimg to eliminate numerous tests, results from these tests and their

significance to the diagnosis were evaluated. Blood count and blood glucose, urea, electrolytes, and calcium measurements were dismissed as unhelpful, although serum calcium might be measured in children of Asian immigrants. Hypocalcemia, which predisposes children to febrile convulsions, is not infrequent in this group. Lumbar puncture was found to be valuable for detecting meningitis in children under the age of 18 months presenting with a first febrile convulsion. In this age bracket, signs of meningitis are often equivocal or absent, whereas in those over 18 months old, such signs are usually obvious.

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2181 **STOKES, M. J.; DOWNHAM, M.A.P.S.; WEBB, J.K.G.; MCQUILLIN, J.; & *GARDNER, P. S.** Viruses and febrile convulsions. *Archives of Disease in Childhood*, 52(2):129-133, 1977.

A wide range of types of viruses was identified in a consecutive series of 276 children admitted to hospital with febrile convulsions and analyzed by age, sex, family history, and past history. The overall rate of identification of viruses by means of nasopharyngeal secretions and cough/nasal swabs was 49 percent. Symptoms of respiratory illness were associated with convulsions in 80 percent of the children, whether with or without a viral etiology. The virus-positive group did not differ significantly from the virus-negative group and did not have more severe convulsions. But rapid diagnosis of virus etiology is helpful in managing children with febrile convulsions and has implications for hospital cross-infection and for research in prevention. Febrile convulsion seems to be a nonspecific response in a predisposed child to any febrile illness, rather than a specific manifestation of infection with certain agents. Since prophylactic anticonvulsion therapy is uncertain, best preventive efforts may be to identify the agents responsible for febrile convulsions and to develop vaccines for children at risk. (15 refs.)

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2182 **ILLINGWORTH, RONALD S.** Lumbar puncture in children with seizures. *Lancet*, 1(8024):1260, 1977. (Letter)

Illingworth stresses the difficulty of confidently confirming the diagnosis of meningitis in a febrile, convulsing infant without lumbar puncture. The extreme urgency of promptly treating pyogenic meningitis in infancy underscores Illingworth's recommendation for performing a lumbar puncture when an infant has his first febrile seizure. (3 refs.)

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2183 **LOUGHNAN, PETER M.; GREENWALD, ALAN; PURTON, WILLIAM W.; ARANDA, JACOB V.; WATTERS, GORDON; & NEIMS, ALLEN H.** Pharmacokinetic observations of phenytoin disposition in the newborn and young infant. *Archives of Disease in Childhood*, 52(4):302-309, 1977.

Age-related changes in the disposition of phenytoin (DPH) in 30 newborn and young infants are described. During the first week of life in term infants the plasma DPH half-life was prolonged and variable (20.7 ± 11.6h, mean ± SD), after which the plasma half-life was much shorter (7.6 ± 3.5h). The half-life was much longer (75.4 ± 64.5h) and more variable in preterm infants. The mean apparent volume of distribution was similar in these groups of infants. Data on postnatal age and plasma concentrations of DPH during maintenance therapy conform to predictions resulting from single dose pharmacokinetic results. Data indicate that at a total DPH concentration of 15mg/l (60μmol/l) the impaired binding seen neonatally had approached adult values by 3 months of age, and the binding of DPH throughout childhood differed slightly from adults. The data suggest that a much higher dose (15.4mg/kg per 24h) than the 8mg/kg dose per 24h of sodium phenytoin may be required for a mean plasma concentration of 10mg/l, range 6.2-19.1mg/l. (36 refs.)

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2184 ***GORMAN, RICHARD J.; SNEAD, O. CARTER; & **JACOBS, ALVIN H.** (Reply). Sturge-Weber syndrome without port-wine nevus. *Pediatrics*, 60(5):785-786, 1977. (Letters)

Drs. Gordon and Snead object to the statement of Drs. Jacobs and Walton (*Pediatrics*, 58:218, August, 1976) that the Sturge-Weber syndrome only occurs when the port-wine stains involve the distribution of the first branch of the trigeminal nerve. This point is considered misleading, since substantial evidence of the occurrence of the syndrome in the absence of a facial nevus has been reported by Lund, Peterman, Tonnis and Friedman; Poser, Traveras, Andriola and Stolfi; Lichtenstein; and Livingston. Dr. Jacobs replies that the cases referred to as Sturge-Weber syndrome in the absence of facial nevus are correctly meningeal angiomatoses. Most of the authors cited were not dealing with Sturge-Weber syndrome alone, and many of the patients had port-wine stains involving the forehead. The importance of the relationship of the facial nevus to the leptomeningeal angiomatoses is that no matter how large or small the nevus, uninvolvement of the upper eyelid and forehead rule out the possible association of CNS involvement, and therefore the clinical diagnosis of Sturge-Weber syndrome in the newborn infant may be inferred with high probability from an inspection of the nevus alone. (16 refs.)

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2185 **CRICHTON, J. U.; ISRAELS, S.; & DUNN, H. G.** More on the management of seizure disorders. *Journal of Pediatrics*, 91(2):349-350, 1977. (Letter)

The management of seizure disorders in North America is limited, in that American clinicians do not have access to certain drugs which are used elsewhere in the management of epilepsy. Sulthiame, nitrazepam, dipropylacetate, and other drugs which are well established in the therapeutic armamentaria of European clinicians are not available in North America except in special circumstances. Other drugs such as carbamazepine and clonazepam have only recently become available in North America, whereas European clinicians have used them for years. As clinicians in other countries are to some extent dependent upon the lead American medicine can give if allowed to do so, it is hoped that federal restrictions will not render American medicine dependent on other countries for the development of new drugs. (8 refs.)

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2186 **RUTTER, N.; & SMALES, O.R.C.** Role of routine investigations in children presenting with their first febrile convulsion. *Archives of Disease in Childhood*, 52(3):188-191, 1977.

The results of routine investigations (lubar puncture, full blood count, blood glucose, calcium, urea, and electrolyte estimations) performed on 328 children presenting with their first febrile convulsion were analyzed to determine the yield of abnormal results, and an attempt was made to assess the usefulness of each investigation. Lumbar puncture was performed in 96 percent of the cases and resulted in the detection of 4 cases of unsuspected meningitis, one of which was bacterial. Two children had normal lumbar punctures on admission but developed meningitis within 48 hours. The other investigations performed were very unhelpful. It is concluded that children admitted to hospital with their first febrile convulsion who are under 18 months of age should have a lumbar puncture to exclude meningitis, regardless of whether they have no signs of meningitis or definite signs of an infection elsewhere. (9 refs.)

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MEDICAL ASPECTS – Etiologic Groupings
Chromosomal disorders

2187 BOFINGER, MARY K.; & SOUKUP, SHIRLEY W. Cat eye syndrome. *American Journal of Diseases of Children*, 131(8):893-897, 1977.

The clinical and cytogenetic findings are described in a case of cat eye syndrome (CES) associated with an extra 22q- chromosome (47,XX, +22q-) in the proposita and a balanced translocation, 46,XX,t(11;22) (q25;q13) in the mother. Verified by banding studies in the mother, the balanced translocation not only confirms the identification of partial trisomy 22 in the proposita, but also demonstrates that, unless all components of a balanced translocation are recognized, a partial trisomy 22 might be indistinguishable from a full trisomy 22. A review of cytogenetic studies in 11 familial and 14 sporadic cases is conducted to provide conclusive identification of the extra chromosome in CES and to illustrate variability in clinical and cytogenetic relationships within the same disorder. This considerable clinical variation and overlapping among other well-known syndromes of chromosomal origin should be kept in mind when simple genetic counseling is requested and sometimes given, in such uncommon syndromes. (36 refs.)

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2188 HAYATA, I.; OSHIMURA, M.; MARINELLO, MICHELLE J.; BANNERMAN, R. M.; & SANDBERG, A. A. Non-disjunction of an unusual X chromosome. *Journal of Medical Genetics*, 13(4):320-323, 1976.

Acentric chromosomes and a 47,XXX chromosome complement were found in a young mother who was investigated because of multiple abnormalities in her 3 children. C and Q banding analysis of karyotypes of 300 peripheral blood cells identified the extra, unusual C-group chromosomes without visible centromeric constrictions as acentric X chromosomes. These chromosomes could replicate in association with nondisjunction leading to aneuploid cells. Examination of buccal mucosa cells for the presence of X-bodies suggested that the phenomenon of nondisjunction was present in the epithelial cells of the patient. Cultured skin cells contained the triple-X but not the extra acentric X chromosomes. Either acentric D or E chromosomes were also found. Results indicate that the appearance of the acentric chromosomes is due to a functional defect within the cells. (7 refs.)

Roswell Park Memorial Institute
Buffalo, New York 14203

2189 QAZI, QUTUB H.; MASAKAWA, AKIKO; MADAHAR, CECILY; & EHRLICH, ROBERT. Trisomy 9 syndrome. *Clinical Genetics*, 12(4):221-226, 1977.

A case of mosaic trisomy 9 is reported and compared with 3 previously reported cases. A female infant was born by an elective cesarean section after 36 weeks of gestation to a 26-year-old mother and a 28-year-old father. The parents were nonconsanguineous and in good health, and 2 older siblings were normal. No history of malformations was elicited. There was no history of drugs, infections, or exposure to irradiation. The features shared by the present case and the 3 previously reported cases of trisomy 9 are: upward-slanted eyes, small palpebral fissures, enophthalmos or microphthalmos, broad base and prominent tip of the nose, microcephaly, micrognathia, low-set abnormal ears, high-arched palate, congenital heart disease, genitourinary anomalies, skeletal abnormalities, abnormal palmar creases, failure to thrive, hypotonia, and psychomotor retardation. All the mothers experienced some problems during pregnancy (vaginal bleeding, and weak fetal movements), and 3 out of 4 infants needed resuscitation in the delivery room. These findings suggest the emergence of a clinically identifiable syndrome. (8 refs.)

Department of Pediatrics
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2190 **HARRIS, E. L.; WAPPNER, R. S.; *PALMER, C. G.; HALL, B.; DINNO, N.; SEASHORE, M. R.; & BREG, W. R.** 7q deletion syndrome (7q32→7qter). *Clinical Genetics*, 12(4):233-238, 1977.

Chromosome analyses of 4 children who presented with unusual facies and delayed mental and physical development revealed terminal deletions (q32-qter) of the long arm of chromosome 7 in all cases. In all 4 children, the karyotypes of both parents were normal. Dysmorphic features characteristic of the del 7q(q32-qter) syndrome include growth deficiency, developmental delay, prominent forehead, bulbous nasal tip, abnormally shaped ears, cleft lip or palate, genital abnormalities, and simian creases. (21 refs.)

*Department of Medical Genetics and Pediatrics
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Indianapolis, Indiana

2191 **NEU, RICHARD L.; DEGEORGE, FRANCES V.; & GARDNER, LYTT I.** A t(5p-;21q+) translocation in a family with Down syndrome. *Clinical Genetics*, 12(2):111-113, 1977.

Cytogenetic studies of a mother and daughter revealed that a portion of the short arm of a B group chromosome had translocated to the long arm of a G chromosome, with a resulting karyotype of 46,XX,t(5;21)(p13;q22). Four of the mother's 8 pregnancies had resulted in miscarriages, and 2 cases of Down's syndrome had occurred in the family. Individuals carrying a structurally altered chromosome 21 may have an increased risk of bearing a child with Down's syndrome. (1 ref.)

State University of New York at Buffalo
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Buffalo, New York 14222

2192 **SPARKES, ROBERT S.; SALTER, WILLIAM J.; BLAKER, ROBERT G.; & MULLER, HELGA M.** Insertional translocation into the X chromosome of a 46,XY male. *Clinical Genetics*, 12(2):114-118, 1977.

Cytogenetic studies of a male infant with multiple congenital anomalies, low birth weight, and severely retarded development revealed an apparent *de novo* insertional translocation into the long arm of the X chromosome. The origin of this extra chromosome material was not evident. The appearance of the abnormal chromosome and the presence of enzyme activity for 3 X-linked traits indicate no loss of X chromosome material. Therefore, it seems likely that the patient has partial duplication for some unidentified chromosome material. Nine other instances of X-autosome translocations have been described in males, but none have appeared to be insertional translocations. (14 refs.)

Division of Medical Genetics
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2193 **HUNTER, A.G.W.; RAY, M.; WANG, H. S.; & THOMPSON, D. R.** Phenotypic correlations in patients with ring chromosome 22. *Clinical Genetics*, 12(4):239-249, 1977.

Chromosome banding studies confirmed ring 22 chromosomes in 2 patients. Clinical features of these patients and 19 previously reported cases of ring 22 include SMR or PMR with disproportionate verbal delay, a trend to microcephaly and growth failure, hypotonia, epicanthic folds, full eyebrows, large ears, dental malocclusion, cutaneous syndactyly between the second and third toes, thick and often fissured lips, mild anomalies of spinal curvature, ataxic or unsteady gait, seizures, and abnormal EEG. Minor anomalies which may be of significance in this disorder include mild maxillary hypoplasia, long eyelashes, prominent antihelix, protruding tongue, and short hands with mild cutaneous syndactyly. (26 refs.)

Division of Genetics
Health Sciences Centre
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2194 **TOOMEY, K. E.; *MOHANDAS, T.; LEISTI, J.; SZALAY, G.; & KABACK, M. M.** Further delineation of the supernumerary chromosome in the cat-eye syndrome. *Clinical Genetics*, 12(5):275-284, 1977.

Cat-eye syndrome (CES) was diagnosed in a female child with anal stenosis, congenital heart disease, bilateral preauricular skin tags, and coloboma of the right fundus. Cytogenetic studies revealed a karyotype of 46,XX/47XX, plus a marker chromosome. Satellites on the marker were comparable in size and brightness to those of the maternal chromosome 22; the presence of the marker was not demonstrated in the father or in 3 siblings. The marker chromosome is apparently derived from a Robertsonian translocation involving the satellites, short arms, and centromere of the maternal chromosome 22 and the centromere and short arm of chromosome 13. (35 refs.)

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2195 **SOUDEK, D.; & SROKA, HELENA.** C-bands in seven cases of accessory small chromosomes. *Clinical Genetics*, 12(5):285-289, 1977.

C-bands were examined in 7 cases of small, accessory chromosomes (AC) to evaluate the effectiveness of the C-banding method in determining chromosome activity. Two cases of familial, genetically inactive AC and 5 cases of genetically active chromosomes were found. The inactive chromosomes consisted of constitutive heterochromatin and satellites only, while euchromatin was present in active chromosomes. Carriers of AC appear to be at risk for MR and malformations. However, since some AC carriers have normal phenotypes, the presence of AC cannot be the sole cause of MR in these patients. (11 refs.)

Cytogenetics Laboratory
Kingston Psychiatric Hospital
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Kingston, Ontario K7L 4X3, Canada

2196 **PAN, SYLVIA F.; FATORA, S. R.; SORG, R.; GARVER, K. L.; & STEELE, M. W.** Meiotic consequences of an intrachromosomal insertion of chromosome No. 1: a family pedigree. *Clinical Genetics*, 12(5):303-313, 1977.

Fourteen members of 3 generations of a family were found to be carriers of a shift insertional chromosome 1 (ins(1)(p32q25q31)). Four female members with mild to moderate MR and minor congenital anomalies were trisomic for the insertional segment (1)q25q31. An immature female abortus with congenital abnormalities was monosomic for the same chromosomal segment. Cytogenetic evidence suggests that a single crossover within the noninsertional loop of a pachytene tetrad during spermatogenesis was responsible for the duplicated and deficient recombinant products seen in the affected family members. (12 refs.)

Clinical Cytogenetics Laboratory
Department of Radiation Medicine
Presbyterian-University Hospital
Pittsburgh, Pennsylvania 15261

2197 **NOEL, BERNARD; & BENEZECH, MICHEL.** YY syndrome in French security settings. *Clinical Genetics*, 12(5):314, 1977. (Letter)

A study of 1172 antisocial male patients admitted to 4 French maximum security hospitals revealed 22 cases with XYY karyotypes (1.87 percent) and 13 cases with 47,XXY karyotypes. The mean age of the XYY males was lower and the mean height was greater than that of the chromosomally normal hospital population. The distribution of IQ levels of XYY males reflects that of the study population as a whole, and their behavioral disturbances are related to psychopathic disorders. Some XYY men may be interned in security settings because they begin criminal activities at a young age, and they may be selected for their threatening appearance. (2 refs.)

Laboratoire de Cytogenetique
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73011 Chambery, France

2198 **CHAMLA, Y.** YY syndrome in French security settings: answer to Drs. Noel and Benezech. *Clinical Genetics*, 12(5):315, 1977. (Letter)

The XYY men in maximum security hospitals surveyed by Drs. Noel and Benezech may not represent XYY men in the general population. It is unfair to characterize XYY men as having a "threatening appearance," since the appearance of XYY men detected in a general cytogenetic laboratory is normal. (2 refs.)

Cytogenetics Laboratory
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F-33077 Bordeaux-Cedex, France

2199 **SAY, BURHAN; CARPENTER, NANCY J.; LANIER, P. R.; BANEZ, CORA; JONES, KATHRYN; & GOLDWELL, JAMES G.** Chromosome variants in children with psychiatric disorders. *American Journal of Psychiatry*, 134(4):424-426, 1977.

The incidence of chromosome variants in 48 hospitalized children with psychiatric diagnoses and 10 hospitalized children with nonpsychiatric diagnoses was evaluated by chromosome banding techniques and compared with the results of 3 surveys of newborn children. The frequency of chromosome variants 1qh, 9qh, Ds+, Gs+, Yq+, and Yq- was greater in the children with psychiatric diagnoses than in the other groups. The highest frequency of variants was observed in children with personality disorders. Patients with behavior disorders, psychoses, and neuroses showed similarly increased frequencies, while those with transient situational disturbances did not. In 2 instances in which parents were studied, the variants seen in the child were not found in the parents. But the frequency of chromosome variants in psychiatric patients as compared with newborn populations did not seem to be higher as compared with other studies using C-band techniques. (15 refs.)

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2200 **SEVER, LOWELL E.** Seasonality in Down syndrome. *Lancet*, 1(8014):754, 1977. (Letter)

On the basis of a noted similarity between monthly conception rates of Down's syndrome fetuses and monthly variation in estradiol-receptor levels in mammary tumors, it has been suggested that the endocrine factors which cause the changes in estradiol-receptor concentration also affect the meiotic process. This hypothesis is interesting, but it needs to be considered critically. First, seasonality in Down's syndrome has not been demonstrated consistently. A second point is the association between Down's syndrome and advanced maternal age, by far the most consistent epidemiological finding in Down's syndrome. Any hypothesis concerning etiology must take this factor into account, and the endocrinological explanation which has been proposed would be more convincing if an association between estradiol-receptor levels and maternal age could be demonstrated. In one study, seasonality of Down's syndrome births was restricted to younger mothers. Since young mothers account for only a small proportion of Down's syndrome births, however, a process possibly unique to this group cannot entirely explain the etiology of Down's syndrome. (5 refs.)

Division of Epidemiology
School of Public Health
University of California at Los Angeles
Los Angeles, California 90024

2201 ***DOLAN, CYNTHIA R.; HALL, JUDITH G.; & **FRANCKE, UTA.** The 2p partial trisomy syndrome. *American Journal of Diseases of Children*, 131(12):1405-1406, 1977. (Letters)

Two unrelated families with apparently identical chromosomal duplications manifest phenotypic differences. In the first family, 5 individuals in 3 generations are trisomic for a portion of the short arm of chromosome 2 (the 2p duplication may involve region 2p24→2pter) and, probably, monosomic for a small portion of the long arm of chromosome 10 (10q26). The patients all are SMRs and have a beaked nose, carp-shaped mouth, a mongoloid slant to the eyes, cryptorchidism, and short stature. The second family of patients with duplication of chromosome 2 (region 2p23→2 pter), all of whom are PMRs, presumably also has

a minute deletion from the 7q terminus. However, this deletion is not evident on banded metaphase chromosomes, and meiotic studies to prove the reciprocal nature of the translocation have not been possible. The differences in clinical presentation between the two families, and, in particular, the fact that the first set of patients is SMR while the second set is PMR, may be attributed to the cytologically evident difference in extent of the duplication region rather than to differences in the not evident, hypothetically associated terminal deletions. (1 ref.)

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2202 X-linked mental retardation. *Australian Journal of Mental Retardation*, 4(6):28-29, 1977. (Editorial)

X-linked MR is a poorly understood condition which is carried by females but which is expressed only in males. The extensive studies done of all the children of New South Wales between 1955 and 1964 helped to establish the importance of X linkage in the etiology of MR and have enabled genetic advice to be given to affected families. Work in Melbourne (Australia) at the St. Nicholas Hospital laboratory and Kew Cottages has now been done to show that, in some families, the propensity to X linkage may be detectable not only in the MR himself but also to some degree in the mothers of the affected males. At the moment, more work needs to be done on the problem, so that it is better understood at the clinical as well as the laboratory level. Research conducted at Adelaide (Australia) Children's Hospital has shown the importance of growing lymphocytes for the necessary chromosomal studies in culture medium 199 in order to demonstrate the marker X chromosome. This is the kind of follow-up work which will be needed in conjunction with further pedigree studies of affected families. (7 refs.)

2203 **SELLER, MARY J.** Amniotic fluid alpha-fetoprotein and Turner's syndrome. *Lancet*, 1(8018):955-956, 1977. (Letter)

The suggestion that a raised amniotic-fluid alpha-fetoprotein (AFP) level when the fetus has a 45,X chromosome constitution is due to the puncture of a cystic hygroma does not apply to our 3 cases, but the suggestion that raised amniotic-fluid AFP levels in these cases are due to spontaneous leakage through the cervical hygromas is a valid one. The pouches are covered by skin, but, although the posterior cervical area of the hygroma is covered by a continuation of the scalp skin complete with hair, the lateral aspects are covered only by a thin membrane. AFP could well permeate through these areas. (2 refs.)

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2204 **PAI, G. S.; LEACH, DAVID C.; *WEISS, LESTER; WOLF, CHARLES; & VAN DYKE, DANIEL L.** Thyroid abnormalities in 20 children with Turner syndrome. *Journal of Pediatrics*, 91(2):267-269, 1977.

Serum concentrations of thyroxine iodine, thyroid stimulating hormone, and antithyroid antibody (ThAb) titer were measured in 20 pediatric patients. Of 10 patients with structural abnormalities of the X chromosome, 3 were hypothyroid, 4 had elevated serum ThAb titers, and 1 had a goiter without other evidence of thyroid dysfunction. Clinical hypothyroidism was not detected in 10 patients without structural variation of the X chromosome, but 5 were considered to be at risk by virtue of having elevated serum ThAb titers. Nine of 15 patients over 10 years of age had elevated ThAb titers (1:25 or greater), while only 1 of 5 patients under 10 years of age had an elevated antibody titer. All 5 patients with palpable goiters and the 3 who were hypothyroid were older than 10 years. Patients with Turner's syndrome are at higher than average risk of developing thyroid disease even during childhood and adolescence, although incidence of thyroid abnormalities increases with age as in the normal population. (7 refs.)

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2205 **PATIL, SHIVANAND R.; HECHT, FREDERICK; LUBS, HERBERT A.; KIMBERLING, WILLIAM; BROWN, JUDITH; GERALD, PARK S.; & SUMMITT, ROBERT L.** Diagnostic radiation and chromosome aberrations. *Lancet*, 1(8003):151, 1977. (Letter)

Evidence that diagnostic X-rays may be important in the origin of a new chromosomal abnormality is presented. Chromosome analyses were done on 4,342 children 7-8 years old, ascertained in the Collaborative Prenatal Project. Also recorded was information on X-ray exposure and maternal diagnostic irradiation in the year before conception and up to the third lunar month of the index pregnancy, along with a large amount of family and clinical data. Chromosomal aberrations were found in 21 children (including a pair of twins and a pair of siblings) born to 19 mothers. Mothers of 6 children with inherited translocations, rearrangements, and XYY karyotypes were excluded. Three (23 percent) of the remaining 13 mothers had received abdominal and pelvic X-ray exposures, although only 6 percent of the mothers in the whole sample had diagnostic irradiation. One mother gave birth to a child with a complex mosaicism involving one X chromosome, and the other 2 mothers gave birth to a child each with *de novo* autosomal translocations. These results are significant, even though the sample size of mothers with chromosomally abnormal children is small. (7 refs.)

Department of Pediatrics
Child Development and
Rehabilitation Center
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2206 **SUTHERLAND, GRANT R.; HOLT, DENISE; & ROGERS, JOHN G.** Amniotic-fluid alpha-fetoprotein in Turner syndrome. *Lancet*, 1(8012):649-650, 1977. (Letter)

A study of a pregnancy in which Turner's syndrome was diagnosed antenatally and which was terminated at 20 weeks of gestation is discussed. One of the large fetal cervical pouches was inadvertently punctured during collection of amniotic fluid from the sac, revealing 30ml of clear amber liquid. Analyses of the amniotic and pouch fluids revealed 45,X karyotypes in the cells, although the pouch fluid had a raised macrophage count. Alpha-fetoprotein (AFP) level in fluid obtained at 15 weeks gestation was 16μg/l (normal range 5-32μg/l). The high levels of amniotic-fluid AFP reported in some instances of Turner's syndrome may result from aspiration of the fetal cervical pouches at amniocentesis, since the fluid obtained would resemble amniotic fluid macroscopically and chemically and might have an increased macrophage count and AFP level. (4 refs.)

Cytogenetic Unit
Department of Histopathology
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North Adelaide, South Australia, 5006

2207 **ROBINSON, A.; & PUCK, T. T.** Trisomy clusters. *Lancet*, 2(8045):981, 1977. (Letter)

In a study of 40,000 births in 2 hospitals in Denver, Colorado, between 1964 and 1974, a clustering of X-chromosomal aneuploidy was found in babies born during the 6-month period May-October (conceived August-January) when compared with those born between November and April. These results were similar to those in a recent study of a cluster of trisomic abortuses conceived between September 1976 and January 1977. A similar distribution of births was found for trisomy 21. These findings confirm the seasonal clustering of chromosomal anomalies and suggest that environmental factors may affect nondisjunction in all the chromosomes in the karyotype to a similar degree.

Department of Biophysics and
Genetics and Eleanor Roosevelt
Cancer Research Institute
University of Colorado
Medical Center
Denver, Colorado

2208 **JENKINS, M. B.; & BOYD, L.** Reciprocal translocation, 4q-;21p, giving rise to Down's syndrome. *Journal of Medical Genetics*, 13(4):323-326, 1976.

A reciprocal translocation between the long arm of a No. 4 chromosome and the short arm of chromosome 21 is described in a balanced carrier

mother and her child with Down's syndrome. The karyotypes for the mother and the child are 46XX,t(4;21)(q27;p11) and 47,XX,t(4q-;21p+), +21, respectively. Results from other Down's syndrome kindreds with diverse reciprocal translocations involving G-group chromosomes are reviewed. (15 refs.)

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Minneapolis, Minnesota 55440

2209 **ISSA, M.; POTTER, A. M.; & BLANK, C. E.** Multiple congenital defects associated with trisomy for long arm of No. 4. *Journal of Medical Genetics*, 13(4):326-329, 1976.

A male infant is described with multiple congenital defects, including MR and peculiar facies, and with trisomy for the distal third of the long arm of No. 4 chromosome and monosomy for the terminal part of the long arm of No. 9 chromosome. Partial trisomy for the long arm of chromosome No. 4 (4q+) has previously been unequivocally identified in only 3 patients, all male. The mother is a carrier of the balanced translocation, t(4;9)(q31;q34). The father's karyotype is normal. (4 refs.)

Centre for Human Genetics
Sheffield, England

2210 **SPEED, R. M.; JOHNSTON, A. W.; & EVANS, H. J.** Chromosome survey of total population of mentally subnormal in North-East of Scotland. *Journal of Medical Genetics*, 13(4):295-306, 1976.

A cytogenetic survey was conducted on the complete population of MR persons in North-East Scotland. A register for the MR within the region already existed, and all persons recorded, whether they resided at home or in MR hospitals or other institutional care, were included. Of the 3,020 MR persons surveyed, 2,770 received cytogenetic analysis. Chromosomal abnormalities were detected in 297 (10.7 percent), of whom 250 (9 percent) had Down's syndrome. The sex ratio in the Down's patients showed an obvious excess of males (153). The remaining anomalies included deletions and supernumeraries in the autosomal chromosomes and increased numbers of sex chromosome abnormalities among both sexes of high grade MR individuals. Results of the survey indicated that chromosome abnormalities contribute significantly to the causation of MR. (54 refs.)

MRC Clinical and Population
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Western General Hospital
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2211 **DAR, HANNA; & SCHMIDT, R.** Topographic approach for analysis of palm crease variants. *Journal of Medical Genetics*, 13(4):310-313, 1976.

A topographic method which permits quantitative analysis of palm crease abnormalities is described. The method utilizes a grid of coordinates drawn on the palm prints and provides an accurate, reproducible description of variants of palm crease configurations. A comparative study was performed on palm prints of 100 patients with Down's syndrome, 100 controls, and 17 normal individuals with the typical simian crease found in patients with Down's syndrome. Results showed that the total degree of transversality (T-DoT; ratio of the transverse distance of the crease divided by its total longitudinal distance) is higher in Down's syndrome patients than in normal subjects, indicating a more transverse generalized direction of the palmar creases. The T-DoT for palms of normal persons with simian creases was significantly lower than in patients with Down's syndrome but was significantly higher than in normals without simian creases. The topographic approach may provide an additional useful parameter in evaluating the potential clinical significance of palmar creases in patients with congenital and genetic disorders. (7 refs.)

Genetic Unit
Rothschild Hospital
Haifa, Israel

2212 **OIKAWA, KYOSHI; TRENT, MICHAEL; & LEBOVITZ, RICHARD** Familial balanced translocation 4p+/17q- as a suggested cause of primary trisomy-21 Down's syndrome. *Archives of Disease in Childhood*, 52(11):890-893, 1977.

A case is presented in which a 4p+/17q- familial balanced reciprocal translocation in the mother produced a son with primary trisomy-21, as well as the structural chromosomal anomaly.

Chromosome analysis was done on the peripheral blood leukocytes and skin fibroblasts, and the chromosomes were G-banded. A number of reports support the supposition that the primary trisomy is causally related to the structural aberration. In situations where one parent carries a balanced translocation, the family should be apprised of the possibility of trisomy-21 offspring, although more firm proof is needed to make a definite connection. A hypothesis, based on experiments in Drosophila, has been put forward to explain the mechanism which links the balanced structural abnormality to an aneuploidy of chromosomes not taking part in the structural change, and this has been extended to similar human situations. (25 refs.)

Hokkaido Children's Hospital
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Hokkaido, Japan

2213 **KROVETZ, L. JEROME.** Pulmonary vascular involvement in Down syndrome. *Journal of Pediatrics*, 88(1):161-162, 1976. (Letter)

Although children with Down's syndrome have a significant degree of hypoventilation, which may account for elevated pulmonary vascular resistance, it does not account for the high incidence of Down syndrome's among children with Eisenmenger's syndrome. Of 21 children identified as having Eisenmenger's syndrome, 7 also had Down's syndrome. Preliminary studies with these postoperative patients indicate that elevated pulmonary vascular resistance is not due to hypoxemia.

University of Virginia
Medical Center
Charlottesville, Virginia 22901

2214 **ROSENGART, RONALD M.; & ISABEL-JONES, JOSEPHINE J.** Pulmonary vascular involvement in Down syndrome. *Journal of Pediatrics*, 88(1):161, 1976. (Letter)

Although children with Down's syndrome have a high incidence of pulmonary hypertension and elevated pulmonary arteriolar resistance, these symptoms do not necessarily indicate irreversible pulmonary vascular disease. The children often exhibit a high degree of systemic hypoxemia due to intracardiac shunting. Intrapulmonary shunting may also occur because many of the children have chronic pneumonia or atelectasis. Also, there is often a significant degree of hypoventilation as a result of sedation, generalized muscle hypotonia, or generalized central nervous system depression. The hypoxemia alone can contribute to pulmonary hypertension. However, if the patient responds to either oxygen or tolalozine and pulmonary resistance falls, the response implies that irreversible changes are not present. (5 refs.)

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2215 **WHITTINGHAM, SENGA; PITT, D. B.; SHARMA, D.L.B.; & MACKAY, I. R.** Stress deficiency of the T-lymphocyte system exemplified by Down syndrome. *Lancet*, 1(8004):163-166, 1977.

The immunological profile of 26 patients with Down's syndrome (16 males and 10 females; chronological age range 15 to 51 years) was examined and compared with findings for 26 healthy controls matched for sex and chronological age. The study revealed an atypical pattern of T-cell immunodeficiency in the Down's syndrome patients. These Ss had a lymphocytosis with high counts of T (and B) cells, but with impaired effect or function of T cells as judged by anergy to dinitrochlorobenze, low responsiveness to ubiquitous antigens which elicit delayed-type hypersensitivity reactions, and low mitogenic activity of nonstimulated and phytohemagglutinin-stimulated lymphocytes in culture. Helper-T-cell function measured by the humoral immune response to flagellin was intact, and there were minor abnormalities of the B system. The low degree of responsiveness to dinitrochlorobenzene and to 5 ubiquitous antigens was not increased after a 3-week course of levamisole. The immunological lesion of these patients could be attributable to stress deficiency, particularly of the thymic system, occurring when the presumably immature immune system was overloaded. (39 refs.)

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Royal Melbourne Hospital
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2216 **ABSATZ, MICHAEL; & BORGAONKAR, DIGAMBER S.** Chromosome arm involvement in interchanges. *Lancet*, 1(8002):96, 1977. (Letter)

With the availability of more data, the chromosome arms involved in interchanges in man (p and q arms of all 24 chromosomes) can now be tabulated. All 48 arms are involved in chromosomal rearrangements. The chart indicating the chromosome number and arm probably will be expanded to show the involvement of specific chromosomal segments such as regions and bands. Two computerized data banks facilitate the compilation of this type of data. The present chart utilizes data from one of them, a catalog, which lists selected references describing significant reports of all major types of chromosomal variants and anomalies. The other data bank, a repository, is a record of unpublished material from contributing laboratories. Use of the chart, the catalog, and the repository should make time-consuming literature searches unnecessary. (4 refs.)

Division of Medical Genetics
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2217 **FITZGERALD, P. H.; MIETHKE, PATRICIA; & CASELEY, R. T.** Major karyotypic abnormality in a child born to a woman with untreated malignant melanoma. *Clinical Genetics*, 12(3):155-161, 1977.

Cytogenetic studies of a 7-month-old female with failure to thrive and developmental retardation revealed a highly irregular karyotype with 5 abnormal chromosomes, representing at least 5 chromosome breaks. G-banding techniques demonstrated reciprocal translocation products between chromosomes 1 and 7, 4 and 15, and probably between the chromosome 4p arm and 12q. All 60 metaphases examined showed this abnormal karyotype, which was more typical of a tumor or leukemic cell line than the cytogenetic constitution of a live-born child. The mother developed malignant melanoma during pregnancy but did not receive therapy until after the infant's birth. The chromosome changes probably occurred in the zygote or a post-zygote cell of the child. An undetected common agent may have been involved in the etiology of the mother's tumor and the clastogenic change in the child's chromosomes. (3 refs.)

Cancer Society of New Zealand
Cytogenetics Unit
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2218 **KEMMANN, E.; JONES, J. R.; ORTI, E.; & TRICOMI, V.** 45,X ovarian karyotype in ovulating female patient with Turner phenotype. *American Journal of Obstetrics and Gynecology*, 129(3):341-342, 1977.

A 16-year-old girl with Turner phenotype was sexually developed and had functioning ovaries. Karyotyping of blood leukocytes and tissue from ovaries, skin, and uterus showed 45,X with no evidence of mosaicism. The development of functioning ovarian tissue in a patient with 45,X karyotype is attributed to the early occurrence of a specific reverse nondisjunction during the mitotic phase of germ cell proliferation. (2 refs.)

Rutgers Medical School
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Piscataway, New Jersey 08854

2219 **KUSHNICK, THEODORE; & ADESSA, GIACOMO M.** Partial trisomy 9 with resemblance to Coffin-Siris syndrome. *Journal of Medical Genetics*, 13(3):237-239, 1976.

An infant with partial trisomy of chromosome 9 who phenotypically resembled a case of Coffin-Siris syndrome was presented. Routine chromosomal analysis showed 47 chromosomes in each of 60 cells counted. Giemsa banding revealed that the extra chromosome was a No. 9 with partial long arm deletion. Her karyotype was 47,XX,+9q-. The patient had a chromosomal pattern different from patients with the Coffin-Siris syndrome who have had no demonstrable chromosomal abnormalities, although she had all of the major features of the syndrome. (5 refs.)

Division of Human Genetics
Department of Pediatrics
New Jersey Medical School
Newark, New Jersey

2220 **FAED, MICHAEL; ROBERTSON, JANET; BROWN, SHEILA; SMAIL, P. J.; & MUCKHART, R. D.** Pure partial trisomy for long arm of chromosome 9. *Journal of Medical Genetics*, 13(3):239-242, 1976.

A pure, partial trisomy of the long arm (q12→q32) of chromosome 9 is reported in a 4-year-old boy with multiple congenital abnormalities and severe developmental retardation. The karyotype of the propositus was 46,XY,der(9),t(9;9)(q32;q12). The karyotypes of both parents and the younger sib were normal, although 10 percent of the mother's cells showed chromosomal structural damage. The trisomy is probably the result of a translocation of the long arm of the chromosome from 1 homologue to the other in a parental gonad. (14 refs.)

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2221 **NISS, RAINER; & PASSARGE, EBERHARD.** Trisomy 8 restricted to cultured fibroblasts. *Journal of Medical Genetics*, 13(3):229-234, 1976.

Trisomy 8 was reported in a patient with a Wilms tumor in the solitary left kidney and with developmental retardation. The diagnostic difficulties in correlating karyotype and phenotype are described. The trisomic cell line was restricted to cultured fibroblasts (which had been stored in liquid nitrogen after their fourth subculture) in the first 22 subcultures but was absent in later passages as well as in lymphocytes. A familial pericentric inversion of chromosome 2, which appeared to be unrelated to the clinical problem, was observed in the propositus, both siblings, his mother, and his maternal grandfather. Multiple spontaneous chromosomal structural rearrangements were seen in several late subcultures and were presumed to have arisen *in vitro*. (27 refs.)

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2222 **WARBURTON, DOROTHY; KLINE, JENNIE; STEIN, ZENA; & SUSSER, MERVYN.** Trisomy cluster in New York. *Lancet*, 2(8030):201, 1977. (Letter)

A cluster of trisomic karyotypes among conceptions taking place in the winter of 1976 was found in examining 6-28-week-old fetuses from spontaneous abortions obtained from New York City hospitals. A 4-fold increase of trisomic fetuses was found in women whose last menstrual period occurred some time between September, 1976 and January, 1977. In an effort to elucidate these findings X amniocentesis records for these women were examined. No cause for this apparent cluster was found. Further studies will show if it is indeed a cluster or if it indicates a rising trend. (1 ref.)

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2223 **OTTO, P. A.; KASAHARA, S.; NUNESMAIA, H. G.; & FROTA-PESSOA, O.** Risk of 45,X karyotype in offspring of Turner's syndrome patients. *Lancet*, 2(8031):257, 1977. (Letter)

A 25-year-old woman with 46,XX/45,X mosaicism, short stature, and menstrual disturbances was concerned about the risk of having a child with Turner's syndrome. After careful analysis the probability of the child having Turner's syndrome was calculated to be 1.5 per 1000. It was decided that amniocentesis was not indicated in this case or in other Turner syndrome patients who are pregnant. After an uneventful pregnancy, the woman gave birth to a pair of male twins, one of which was stillborn with no malformations. The other boy is normal and healthy. (5 refs.)

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2224 **GOLDSTEIN, DAVID E.; KELLY, THADDEUS E.; JOHANSON, ANN J.; & BLIZZARD, ROBERT M.** Gonadal dysgenesis with 45,XO/46,XX mosaicism demonstrated only in a streak gonad. *Journal of Pediatrics*, 90(4):604-605, 1977.

An adolescent girl with elevated levels of serum gonadotropins but no marked somatic abnormalities was believed to have gonadal dysgenesis. Multiple cultures of peripheral leukocytes and skin

fibroblasts showed a 46,XX karyotype. At age 17.5 years, diagnostic laparoscopy revealed bilateral streak gonads; culture of the right ovarian streak revealed 45,XO/46,XX mosaicism. In some patients sex chromosomal abnormalities may be demonstrated only by chromosomal study of gonadal streaks. (7 refs.)

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2225 **PRIEST, JEAN H.; BRANTLEY, KARLENE E.; & BLACKSTON, R. DWAYNE.** Parental mosaicism as a cause of Down's syndrome: a report of 46,XX/46,XX,-21,+t(21q21q) mother and 46,XY,+21,+t(21q21q) child. *Journal of Pediatrics*, 90(5):786-788, 1977.

Of 100 consecutive cases of Down's syndrome studied, 3 mothers were found to have chromosomal abnormalities, including a 14/21 balanced translocation and 2 mothers who were Down's syndrome mosaics. In neither of the women was culture of skin and blood sufficient to establish the chromosomal abnormality. In these cases clinical features played a significant role in establishing the diagnosis. It is suggested that in the ideal clinical Down's syndrome evaluation, quantitative dermal indices and a clinical feature checklist be applied to the index case, father, and mother, as well as peripheral blood chromosome analysis, with Q banding for evaluation of polymorphism. (7 refs.)

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2226 **SCHMIDT, RINA; & NITOWSKY, HAROLD M.** Recurrence of apparent de novo 21/21 translocation trisomy in a sibship. *Journal of Pediatrics*, 90(5):841-842, 1977. (Letter)

A family is described in which 2 children of 3 were born with 21/21 translocation Down's syndrome. The parents have an apparently normal karyotype, with no evidence of mosaicism for a translocation carrier state. Cytogenetic studies on the children revealed identical karyotypes of 46,XY-21, +(21q;21q). The parents' peripheral blood revealed a normal karyotype. A skin biopsy of the mother showed no evidence of mosaicism, and her dermatoglyphics were normal. The occurrence of a 21/21 translocation Down's syndrome in these 2 siblings could be explained by *de novo* translocation. Since the 2 cases exemplify an increased recurrence risk of *de novo* translocation, amniocentesis should be considered in future pregnancies. (6 refs.)

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2227 **HEDNER, KARIN; CARLSSON, ERIC; & MITELMAN, FELIX.** Wolf-Hirschhorn syndrome and balanced (4;10) translocation in the father. *Clinical Genetics*, 12(2):101-103, 1977.

An infant showed multiple congenital anomalies typical of the Wolf-Hirschhorn syndrome, including facial asymmetry, microcephaly, micrognathia, hypertelorism, antimongoloid slanting of the eyes, epicanthal folds, left-sided exophthalmus, low-set ears, cleft palate, downturned mouth, broad nose, hernia umbilicalis, and multiple malformations of the feet. Cytogenetic analysis revealed a deletion of the short arm of chromosome 4, with a resulting karyotype of 46,XX,del(4)(p13). The patient's father had a balanced translocation between chromosomes 4 and 10; his karyotype was 46,XY,t(4;10)(p13;26). Prenatal diagnosis can assure couples at risk that no further child with an unbalanced karyotype will be born. (3 refs.)

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2228 **THEILGAARD, ALICE; *LUNDSTEEN, CLAES; PARVING, HANS-HENRIK; & PHILIP, JOHN.** Trisomy 8 syndrome: a psychological and somatic study of a mentally non-retarded male with 46,XY/47,XY,+8 chromosome constitution. *Clinical Genetics*, 12(4):227-232, 1977.

A psychological investigation of a 27-year-old male with trisomy 8 mosaicism (46,XY/47,XY,+8) revealed an immature personality, lethargy, lack of spontaneity, and lack of confidence. Although the patient's IQ was within normal range, the

development of cognitive functions was uneven, and he had special difficulties in synthetic abilities and visual scanning. Clinical presentation was characteristic for trisomy 8 syndrome, including short head, short broad-bridged nose, protruding upper lip, *pterygium colli*, moderate kyphoscoliosis, camptodactyly of all fingers, deep furrowing of the soles, spina bifida of L1, and fusion of L5 and S1. (15 refs.)

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2229 **NIELSEN, JOHANNES; HOMMA, A.; CHRISTIANSEN, F.; RASMUSSEN, K.; & SALDANA-GARCIA, P.** The deletion 9p syndrome. A 61-year-old man with deletion of short arm 9. *Clinical Genetics*, 12(2):80-84, 1977.

Cytogenetic studies of a 61-year-old MR male revealed deletion of short arm 9 at band number 22; the karyotype was 46,XY,del(9)(p22). The patient shows few of the signs typical of the deletion 9p syndrome in children. Dermatoglyphics of his hands and feet are normal, and there are no facial anomalies other than high, narrow palate and fairly low forehead. The patient has been institutionalized from age 10 to 30 years and from age 40 to the present. Despite some progress following intensive stimulation and behavioral treatment, it is difficult to make emotional contact with the patient, primarily as a result of apparent auditory hallucinations. (7 refs.)

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MEDICAL ASPECTS – Etiologic Groupings
Congenital malformations

2230 **ROBINOW, MEINHARD; JOHANSON, ANN J.; & SMITH, THOMAS H.** The Lenz-Majewski hyperostotic dwarfism: a syndrome of multiple congenital anomalies, mental retardation, and progressive skeletal sclerosis. *Journal of Pediatrics*, 91(3):417-421, 1977.

A patient presented with multiple congenital anomalies, progressive skeletal dysplasia-dysostosis, severe growth retardation and emaciation, and MR. Physical features included delayed closure of the fontanel, hypertelorism, nasal obstruction, dental enamel dysplasia, hyperextendable joints, proximal symphalangism, interdigital webbing, cryptorchidism, loose atrophic skin, and prominent cutaneous veins. Radiographic examination revealed retarded skeletal maturation, metaphyseal and epiphyseal hypostosis, diaphyseal undermodeling and mid-shaft cortical thickening, short middle phalanges, broad clavicles and ribs, and progressive sclerosis of skull, facial bones, and vertebrae. Two patients previously described in the literature shared identical features. The sporadic occurrence and advanced paternal age in these patients are consistent with a dominant mutation. (10 refs.)

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2231 **DIGNAN, PETER ST. J.; & WARKANY, JOSEF.** Congenital malformations: the corpus callosum. In: Wortis, J., ed. *Mental Retardation and Developmental Disabilities: An Annual Review* (Annual Series, Volume 9). New York, New York: Brunner/Mazel, 1977, p. 106-131.

Agenesis of the corpus callosum occurs with a wide variety of signs, symptoms, and associated malformations, and diagnosis is rarely possible on the basis of clinical findings alone. A large head with concomitant signs of raised intracranial pressure is frequently the initial abnormality in the first weeks of life, with periodic vomiting, irritability, and slow mental development appearing later. Seizures are invariably the initial abnormality in the older child and the adult. Malformations of the brain exist which result in absence or defectiveness of the corpus callosum. Some associated malformations of callosal agenesis can be obligatory constituents of a syndrome or be facultative, though not accidental. Most of the

cases of callosal absence diagnosed during life have been made by encephalographic studies, but the condition also has been discovered during brain surgery. Most authors report that the EEG in agenesis of the corpus callosum shows nonspecific abnormalities, usually generalized slow waves. Carotid angiography has been successful in detecting the condition, and 2 cases examined by computerized tomography have been reported. (126 refs.)

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2232 **LADDA, ROGER L.; STOLTZFUS, ELAM; GORDON, STANLEY L.; & GRAHAM, WILLIAM P.** Craniosynostosis associated with limb reduction malformations and cleft lip/palate: a distinct syndrome. *Pediatrics*, 61(1):12-15, 1978.

A craniosynostosis patient presented with both radial and fibular aplasia in addition to cleft lip and velopharyngeal incompetence. It is difficult to know if this is simply a more complete expression of a malformation syndrome of which the previously reported cases of craniosynostosis and radial or fibular aplasia may be a part, or if it is a distinct malformation syndrome. The child was institutionalized at birth. At age 9 the child was friendly, cooperative, active, and fairly agile despite his malformations. He ambulated effectively on his knees and was able to manipulate feeding utensils and toys despite the marked deformities of the upper extremities. The child began ambulating in plantigrade posture for the first time at age 9.5 years. Over a period of 6 months with long leg braces the child became an independent ambulator. He responded well to a program of verbal and language stimulation, which was very effective in improving his vocabulary and personal independence. His IQ was estimated at about 80. Other abnormalities in this child's syndrome included cleft lip/palate, dysplastic ears, ocular abnormalities, malocclusion, capillary hemangioma, hand/foot deformities, simian creases, pterygia, vertebral abnormalities, hypogonadism, and short stature. (12 refs.)

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2233 **VAN BIERVLIET, J.P.G.M.; BRUINVIS, L.; KETTING, D.; DE BREE, P. K.; VAN DER HEIDEN, C.; *WADMAN, S. K.; WILLEMS, J. L.; BOOKELMAN, H.; VAN HAELST, U.; & MONNENS, L.A.H.** Hereditary mitochondrial myopathy with lactic acidemia, a DeToni-Fanconi-Debre syndrome, and a defective respiratory chain in voluntary striated muscles. *Pediatric Research*, 11(10):1088-1093, 1977.

A male infant with mitochondrial myopathy leading to severe insufficiency of the voluntary muscles and lethal asphyxia at 13 weeks of age is described. The syndrome was combined with a severe congenital hyperlactacidemia and a DeToni-Fanconi-Debre syndrome, contributing to severe cerebral damage. Major biochemical findings were extreme lactic acidemia, hypophosphatemia, hyperphosphaturia, generalized aminoaciduria, renal glucosuria, and polyuria. The patient and his twin sisters exhibited the same clinical symptoms of hypotonia, absence of visual contact, lethargy, and extreme muscular weakness, and all died before the fourth month of life. The family picture suggests an autosomal recessive mode of inheritence. All therapeutic trials were inadequate. Cytochromes aa_3 were absent, and b was nearly absent in voluntary muscles, but all were at control levels in heart muscle. An underlying mechanism of a defective respiratory chain in the mitochondria of the striated muscles may account for the lactic acidemia. (38 refs.)

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2234 **HUSTINX, T.W.J.; TER HAAR, B.G.A.; SCHERES, J.M.J.C.; RUTTEN, F. J.; WEEMAES, C.M.R.; HOPPE, R.L.E.; & JANSSEN, A. H.** Bloom's syndrome in two Dutch families. *Clinical Genetics*, 12(2):85-96, 1977.

Four children from 2 unrelated Dutch families showed, in varying degrees, clinical features characteristic of Bloom's syndrome, including stunted growth, telangiectatic facial erythema, sun-sensitivity of the skin, and decreased immunocompetence. Intellectual development was normal in 3 of the children, but one had a verbal IQ of 48 and a performance IQ of 58 at 6 years of age. Cytogenetic studies of all 4 children revealed one or more signs of chromosome instability, such as

chromatid or isochromatid gaps and breaks, fragments, various types of rearrangements, and an increase in the frequency of exchanges between sister chromatids. The incidence of sister chromatid exchanges in parents of these patients was significantly higher than that of controls. (21 ewfa.).

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2235 **BROWN, ZANE A.; JUNG, AUGUST L.; & STENCHEVER, MORTON A.** Aplasia cutis congenita and the fetal scalp electrode. *American Journal of Obstetrics and Gynecology*, 129(3):351-352, 1977.

Aplasia cutis congenita (ACC) can easily be mistaken for damage inflicted by the spiral fetal scalp electrode used in monitoring fetal heart rate during labor. The most common site for this congenital absence of skin is the vertex of the scalp, posteriorly and in the midline. The round or oval lesions are usually single, ranging from 1 to 2cm in diameter. An analysis of pedigrees has indicated an autosomal dominant mode of inheritance with variable penetrance and expressivity. ACC is thought to result from a defect in embryogenesis, possibly a failure to completely close the neural tube or the various embryonic clefts.

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2236 **RIDLER, M.A.C.; LAXOVA, RENATE; DEWHURST, K.; & SALDANA-GARCIA, P.** A family with syndactyly type II (synpolydactyly). *Clinical Genetics*, 12(4):213-220, 1977.

Clinical, dermatoglyphic, and blood group linkage data were obtained from a family in which 8 members in 4 generations had syndactyly type II (synpolydactyly). Dermatoglyphic patterns were distorted in severely affected patients but not in those with the milder manifestation of the disease. Although too few data are available to provide significant linkage information, lod scores suggest that the syndactyly II locus is not closely linked to those for the ABO, MNS, P, Rh, or Kell antigens. Previous reports of sex limitation, with a preponderance of affected males (Cross 1968, Carter & Fairbanks 1974), are not supported in this family, where all but one of those affected are females.

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2237 **GOSDEN, CHRISTINE; BROCK, D.J.H.; & EASON, PATRICIA.** The origin of the rapidly adhering cells found in amniotic fluids from foetuses with neural tube defects. *Clinical Genetics*, 12(4):193-201, 1977.

Analyses of amniotic fluid samples obtained in pregnancies with high maternal serum alphafetoprotein indicate that cells which rapidly adhere to glass (RA cells) in amniotic fluid may be reliably used as a diagnostic marker of fetal lesions involving neural tissue. The number and morphology of RA cells in amniotic fluids from fetuses with neural tube defects is independent of soluble factors in the supernatant fluid. These RA cells show numerous similarities to cells taken directly from brain and spinal cord in normal fetuses. (5 refs.)

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2238 **SAY, BURHAN; BERRY, JUDY; & BARBER, NANCY.** The Stickler syndrome (hereditary arthro-ophthalmopathy). *Clinical Genetics*, 12(3):179-182, 1977.

Three patients were found to have Stickler syndrome (hereditary arthro-ophthalmopathy), characterized by varying degrees of myopia, audiological impairment, and delays in receptive and expressive language abilities. One of the patients showed SMR and bilateral choanal atresia, which may represent an extreme example of the mid-facial hypoplasia commonly seen in these patients. Stickler syndrome may not be as rare as previously thought; the false impression of its rarity may be the result of misclassification of Stickler syndrome patients under other diagnostic labels, such as familial myopia and Pierre Robin syndrome. (5 refs.)

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2239 **ESCOBAR, VICTOR; & BIXLER, DAVID.** On the classification of the acrocephalosyndactyly syndromes. *Clinical Genetics*, 12(3):169-178, 1977.

Examination of a 14-month-old infant revealed the classic stigmata of Pfeiffer syndrome, including acrocephaly, clinocamptodactyly of all fingers, polydactyly of both feet, and syndactyly of all toes. An 18-year-old cousin of the infant showed clinical signs of Apert syndrome, including SMR, acrocephaly, and complete syndactyly of the digits of both hands and feet. Seven other family members had unusually shaped heads and facial resemblance to patients with Crouzon disease, with no clinical abnormalities of hands and feet. Since the Pfeiffer and Chotzen syndromes have previously been diagnosed within a single family, it is possible that the Apert, Pfeiffer, and Chotzen types of acrocephalosyndactyly are variations of a single gene defect rather than separate nosological entities. (40 refs.)

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2240 **CAO, ANTONIO; CIANCHETTI, C.; SIGNORINI, E.; LOI, M.; SANNA, G.; & DE VIRGILIIS, S.** Agenesis of the corpus callosum, infantile spasms, spastic quadriplegia, microcephaly and severe mental retardation in three siblings. *Clinical Genetics*, 12(5):290-296, 1977.

Three siblings showed a clinical syndrome consisting of infantile spasms with hypsarrhythmia, microcephaly, SMR, and spastic quadriplegia. Pneumoencephalograms performed on 2 of the children revealed agenesis of the corpus callosum and aqueductal stenosis with triventricular dilatation. Progressive neurological deterioration was not observed, and no biochemical or cytogenetic defects were identified. The occurrence of a similar constellation of anomalies in 3 siblings of both sexes with normal parents strongly suggests that the syndrome is transmitted by an autosomal recessive gene. (19 refs.)

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2241 **PARLOIR, C.; FRYNS, J. P.; DEROOVER, j.; LEBAS, E.; GOFFAUX, P.; & VAN DEN BERGHE, H.** Short stature, craniofacial dysmorphism and dento-skeletal abnormalities in a large kindred: a variant of the K.B.G. syndrome or a new mental retardation syndrome. *Clinical Genetics*, 12(5):263-266, 1977.

Four children in a large family had a syndrome characterized by MR, short stature, craniofacial dysmorphism, and dentoskeletal abnormalities. Craniofacial findings include relative brachycephaly, lateral extension of the hair on the forehead, small base of a large nose, small palpebral fissures, a tendency to synophrys, and a short upper lip. The 3 other children in the family had normal phenotypes, but the mother had slight MR and craniofacial stigmata similar to those of the affected children. The syndrome, which may be a variant of the KBG syndrome, appears to be transmitted in an autosomal dominant fashion with variable expression. (1 ref.)

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2242 **MARTIN, ALICE O.; PERRIN, JANE C. S.; MUIR, W. A.; RUCH, E.; & SCHAFER, IRWIN A.** An autosomal dominant midline cleft syndrome resembling familial holoprosencephaly. *Clinical Genetics*, 12(2):65-72, 1977.

Five members of a single kindred showed a pattern of developmental anomalies including MR; microcephaly; large external ears; craniofacial anomalies including cleft lip, anterior cleft palate, absence of central and lateral incisors, absence of the premaxilla, hypotelorism, and antimongoloid slant; skeletal anomalies including talipes varus and spinal anomalies; and chronic constipation. Three of the 4 affected males survived past 20 years of age; the fourth is an infant. Three female infants believed to have the same disorder died early in infancy. Pedigree data for 4 generations of the kindred suggest autosomal dominant transmission of the abnormal allele with incomplete penetrance and variable expressivity. Despite similarities to familial holoprosencephaly, the pattern of anomalies in this family appears to represent a separate entity. (4 refs.)

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2243 **MEASE, ALAN D.; & MERESTEIN, GERALD B.** Cerebro-oculofacio-skeletal syndrome. *American Journal of Diseases of Children*, 131(12):1405, 1977. (Letter)

A previous report of a syndrome of skeletal, facial, and ocular anomalies, microcephaly, intrauterine growth retardation, and hypotonia associated with renal anomalies and oligohydramnios in two infants who died of respiratory failure noted the overlap of features in these cases with Potter's syndrome but did not mention a similarity to the syndrome of ankylosis, facial anomalies, and pulmonary hypoplasia. There are significant differences between these syndromes (microcephaly and ocular anomalies). However, fetal myoneural dysfunction was a clear possibility in both infants. The causes of fetal myoneural dysfunction are obscure and require further investigation. Therefore, all infants with musculoskeletal anomalies and syndromic features should have the motor unit evaluated by muscle histology (routine, histochemical, and electron microscopic), electromyogram, serum enzymes, and spinal cord histology at autopsy. Such studies may allow classification of these syndromes on the basis of the underlying pathologic defect. (5 refs.)

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2244 **SMITHELLS, R. W.; SHEPPARD, SHEILA; & SCHORAH, C. J.** Folates and the fetus. *Lancet*, 1(8018):955, 1977. (Letter)

The lack of correlation of two sets of results concerning a hypothesized connection between folate deficiency and neural-tube defects is due to a difference in interpretation. We measured red-blood-cell folate in the first trimester, and our results are compatible with the hypothesis that folate deficiency may be a factor contributing to the causation of neural-tube defects. Dr. Hall and Professor Emery measured serum-folate in mid-pregnancy or post partum and found no convincing evidence that folic-acid deficiency causes fetal central nervous system malformations. Dr. Hall suggests that serum-folate is a more sensitive index of folic-acid deficiency, but red-cell folate measured towards the end of the first trimester could reflect whole-body folate reserves earlier in pregnancy. In Emery's study, folic-acid supplementation started in the sixth week of pregnancy could not influence closure of the neural tube, but massive dosage provided throughout the remainder of that pregnancy might have contributed to the normality of the next baby if the following pregnancy started within a year. (4 refs.)

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2245 **GOSDEN, CHRISTINE M.; & BROCK, D.J.H.** Morphology of rapidly adhering amniotic-fluid cells as an aid to the diagnosis of neural-tube defects. *Lancet*, 1(8018):919-922, 1977.

A modified version of a quantitative technique developed for analyzing the morphology of rapidly adhering cells in amniotic fluids where the fetus has an open neural-tube defect was employed to examine 20 amniotic-fluid samples taken in the second trimester from pregnancies in which the fetus was affected. Among 92 normal amniotic fluids, including 19 which were contaminated with varying amounts of maternal and fetal blood, none had more than 6 percent of rapidly adhering cells. None of the 20 cases of neural-tube defect had less than 9 percent of such cells, and some cases with larger open lesions had more than 90 percent. Furthermore, the morphology of the rapidly adhering cells was characteristic in spina bifida (8 cases) and anencephaly (12 cases) and distinct from the epithelioid-like cells seen in normal amniotic fluids. A sample of amniotic fluid from fetal exomphalos and one from a pregnancy in which the placenta had been repeatedly traversed during amniocentesis had proportions of adherent cells in the pathological range, but the morphologies were very different from those seen in neural-tube defects. (13 refs.)

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2246 **CHECK, JEROME H.; RAKOFF, ABRAHAM E.; GOLDFARB, ALVIN F.; & SLIPYAN, PHILIP.** Anosmia and hypogonadism associated with elevated luteinizing hormone levels and multiple congenital anomalies. *American Journal of Obstetrics and Gynecology*, 127(8):889-891, 1977.

The first reported case of anosmia, secondary amenorrhea with estrogen deficiency, and elevated luteinizing hormone (LH) occurred in a 21-year-old woman who had a broad flat nose with an almost cleft palate, multiple congenital anomalies of both hands and feet, vertical and horizontal nystagmus, poor vision in the right eye, and defects in the nasal inferior and temporal superior fields. A hypothalamic defect was suggested by the association of anosmia, congenital anomalies, and EEG abnormalities. The supranormal LH response on gonadotropin-releasing hormone testing and the failure of follicle-stimulating hormone (FSH) levels to return to baseline values 2 hours after injection as well as the failure of Clomid response lent further support to this diagnosis. The gonadotropin-resistant nature of the ovaries was suggested by the presence of only unstimulated primary follicles despite elevated LH. This was supported further by the poor response to 450 I.U. of human menopausal gonadotropins. In contrast to typical gonadotropin-resistant ovaries, where FSH is usually higher than LH, here the LH was increased while the FSH was low normal, raising the possibility of an associated pituitary defect. (2 refs.)

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2247 **TAHERNIA, A. CYRUS; & STAMPS, PHIL.** "Jeune syndrome" (asphyxiating thoracic dystrophy). *Clinical Pediatrics*, 16(10):903-907, 1977.

Asphyxiating thoracic dystrophy (ATD) is a rare familial malformation which is associated with an early onset of respiratory distress and may have a fatal outcome. Hallmarks are extreme restriction and narrowing of the thorax, short ribs, and short-limbed dwarfism with abnormalities of the bones in the pelvis and extremities. A case is described in which typical abnormalities are noted in addition to a previously unreported feature, a lobulated tongue and gingiva. In this patient both lungs were immature and demonstrated hyaline membrane formation. A summary of other reported cases is presented. (30 refs.)

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2248 **STOLTZFUS, ELAM; *LADDA, ROGER L.; & LLOYD-STILL, JOHN.** Langer-Giedion syndrome: Type II tricho-rhino-phalangeal dysplasia. *Journal of Pediatrics*, 91(2):277-280, 1977.

A 8.5-year-old boy presented with all the major features of the Langer-Giedion syndrome, or Type II tricho-rhino-phalangeal dysplasia (TRP). In addition to the unusual facies with bulbous nose, large ears, sparse hair, cone-shaped epiphyses of the phalanges of the fingers and toes, and growth deficiency characteristic of TRP, the patient had multiple exostoses, skin and joint laxity, microcephaly, and SMR. These latter features distinguish the Langer-Giedion form of TRP from TRP Type I. The patient's general health was good with the exception of frequent respiratory infections and unexplained intermittent diarrhea. The etiology of this form of TRP is unknown. The possibility of transmission of the trait is difficult to evaluate, as few patients with the disease reach sexual maturity, and the severe degree of MR in these patients may preclude reproduction. (10 refs.)

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2249 **HANSON, JAMES W.; SAYERS, MARTIN P.; KNOPP, LAWRENCE M.; MACDONALD, CONSTANCE; & SMITH, DAVID W.** Subtotal neonatal calvariectomy for severe craniosynostosis. *Journal of Pediatrics*, 91(2):257-260, 1977.

A subtotal calvariectomy was performed on a

13-day-old infant with synostosis of sagittal, coronal, and lambdoidal sutures who had signs of increased intracranial pressure with impending neurologic complications. The calvarium was excised anteriorly to the supraorbital margins, posteriorly to near the foramen magnum, and laterally to the region of the squamosal sutures, and included the entire area of coronal sutures. Within 2 weeks early developing islands of bone could be palpated, and by 4 months of age a new calvarium was well developed, which included anterior and posterior fontanels and coronal and sagittal sutures in the usual positions. Brain growth has been normal up to age 2 years, and cosmetic results appear to be preferable to those obtained by more limited surgery. Developmental progress has been within the normal range, with the exception of mild hypotonia and a slight delay in gross motor skills. Calvariectomy may permit better facial growth than linear craniotomy by minimizing secondary deformities in growth of the cranial base. (8 refs.)

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2250 Histiocytosis X. *Lancet*, 2(8035):440-441, 1977. (Editorial)

The etiology of the 3 syndromes collectively termed histiocytosis X (eosinophilic granuloma of bone, Hand-Schuller-Christian disease, and Letterer-Siwe disease) is still not fully understood. Survivors of histiocytosis X are characterized by abnormal bone x-rays and skeletal complaints such as bone pain and swelling. Multiple bone lesions and diabetes insipidus occur in about a third of children who survive histiocytosis X. No clearly superior treatment regimen for this disease has emerged from retrospective studies. Eosinophilic granuloma is usually treated by simple curettage of the lesion and occasionally by radiotherapy. Chemotherapy with vinblastine alone, vinblastine with prednisolone, 6-mercaptopurine with prednisolone, vincristine, or cyclophosphamide appears to be beneficial in Hand-Schuller-Christian and Letterer-Siwe diseases. (17 refs.)

2251 **REID, ROBERT.** Spina bifida: the fate of the untreated. *Hastings Center Report*, 7(4):16-19, 1977.

John Lorber's criteria for selection of spina bifida infants who should not receive treatment, based upon his knowledge of over 1,000 spina bifida babies treated at Sheffield Hospital, has met with much criticism. Over a 21 month period, Dr. Lorber and his staff delivered 37 spina bifida infants, of whom 25 considered too severely affected for treatment died within the first 9 months of life. Problems arise when untreated infants survive with serious physical and mental defects, since treatment would have lessened the severity of their handicaps. Although doctors are willing to let a child die in such a case, most, like Lorber, speak strongly against active euthanasia. Some British doctors argue that the law governing euthanasia should remain unchanged because it allows doctors to practice euthanasia covertly, restricting it to the cases where it is most needed, while maintaining the control which prevents the abuse of euthanasia. But the introduction of legalized euthanasia for spina bifida children might lead to a change in moral attitudes, permitting the wide use of euthanasia in other circumstances. The doctor's dilemma in cases of spina bifida remains unresolved.

2252 **VEATCH, ROBERT M.** The technical criteria fallacy. *Hastings Center Report*, 7(4):15-16, 1977.

The recent upsurge of lists of criteria for selection for treatment of spina bifida infants may lead physicians to become so infatuated with their technical ability to accumulate data and tally scores that they seriously misunderstand the nature of the difficult decisions that must be made. John Lorber has bluntly stated that infants showing any one or any combination of certain defects should not be given active treatment, and G. Keys Smith and E. Durham Smith have proposed similar lists. Sherman C. Stein, Luis Schut, and Mary D. Ames propose that the criteria for selection need perfecting, since 52 percent of those who had major adverse criteria present nevertheless had a satisfactory outcome (I.Q. of 80 or more and moderate or less physical handicap). But it is a mistake to assume that any set of technical criteria will be able to make a definite separation between babies to be treated and those not to be treated. The phrase "contraindications to active therapy" used by Lorber actually represents the medicalization of value choices. Raymond Duff and A.G.M. Campbell have stated that prognosis is only one factor in the decision to be made and conclude that the family must be the

crucial decision-maker, with society and health care professionals providing only general guidelines. (9 refs.)

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2253 DARLING, ROSALYN BENJAMIN. Parents, physicians, and spina bifida. *Hastings Center Report*, 7(4):10-14, 1977.

Physicians have begun to establish guidelines in cases of myelomeningocele (spina bifida) so that only those children that meet certain predetermined criteria will be given the surgery necessary to preserve life. To explore the sociological basis for the establishment of such criteria, parents of 25 affected children ranging in age from 3 weeks to 19 years were interviewed, and all defined their situation in a positive manner. Although most parents agreed that they would not have wanted the child to be born, they felt that the life was valuable once the child was born. The parents tended to reject physicians with negative attitudes toward the life of the afflicted child. Interviews of 15 doctors focused on techniques of informing parents about their children's problems and the physician's feelings about treating handicapped children in their everyday practice. Many physicians felt that socialization in medical school, which stresses the treatment of acute illness, does not adequately prepare physicians for dealing with chronic conditions. John Freeman feels that since active euthanasia is illegal, the only humane course is to treat virtually every child, even though the child may grow up to curse the efforts and people involved when facing the difficulties of marriage and employment. (25 refs.)

2254 KLEMETTI, ANNELI. Definition of congenital malformations and detection of associations with maternal factors. *Early Human Development*, 1(2):117-123, 1977.

An analysis of 2,913 pregnancies was performed to determine whether differing definitions of congenital malformations would influence the significance of etiologic factors. According to 3 different definitions of congenital malformations, 3 study groups were formed: structural malformations (93 cases), all congenital defects (197 cases), and all disorders or abnormalities with possible prenatal etiology (334 cases). The social history of the parents and some factors during pregnancy, including illness and drug-taking, had positive associations with the study groups in comparison to the control group. The associations were strongest with the group of structural malformations and became weaker when including defects with a possible prenatal origin. The proportion of children with birthweights below 2,500g was significantly higher in the study group than in the controls. Cases of maternal influenza and the use of sedatives during early pregnancy were much higher in the structural malformations group. Distinct differences in the etiologic factors could be found between different groups of malformations. (7 refs.)

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2255 LAZJUK, G. I.; LURIE, I. W.; & NEDZVED, M. K. Further studies on the genetic heterogeneity of cebocephaly. *Journal of Medical Genetics*, 13(4):314-318, 1976.

Cytogenetic and pathomorphological investigations in 4 cases of cebocephaly are presented. Three of the infants were karyotyped, revealing one with D trisomy and two with normal karyotypes. Cytogenetic analysis was unsuccessful in one infant. Analysis of all cytogenetically studied cases with this malformation reveals that cebocephaly with a normal karyotype may result from more than one mutant gene, and so may be accompanied by different extracranial abnormalities. Since extracranial abnormalities in 18p- syndrome are not obligatory features, the possibility of chromosomal abnormalities should not be excluded in the absence of visceral pathology. On the other hand, multiple congenital abnormalities accompanied by cebocephaly may be the result of mendelian genes or of environmental events; therefore the discovery of visceral abnormalities is not inconsistent with a normal karyotype in the child. (14 refs.)

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2256 **DAVID, T. J.; & NIXON, ANGELA.** Congenital malformations associated with anencephaly and iniencephaly. *Journal of Medical Genetics*, 13(4):263-265, 1976.

The necropsy records of 294 cases of anencephaly and 50 cases of iniencephaly from 1948 to 1975 in Bristol, England, were examined for associated malformations. The cases with genital defects, cardiovascular system defects, gastrointestinal defects, and skeletal defects were subdivided by sex and by the presence or absence of spina bifida. Other malformations occurred in 41 percent of the series but were more common in cases with spina bifida. The most frequent single malformations were nephrosis (8 percent), cleft palate (8 percent), diaphragmatic hernia (5 percent), exomphalos (5 percent), hare lip (4 percent), and horseshoe kidney (4 percent). The presence of other malformations in anencephaly or iniencephaly may indicate some etiological heterogeneity. (11 refs.)

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2257 **FITCH, NAOMI; & SROLOVITZ, HERBERT.** Severe renal dysgenesis produced by a dominant gene. *American Journal of Diseases of Children*, 130(12):1356-1357, 1976.

A woman with the autosomal dominant syndrome of preauricular pits, cervical fistulae, and partial deafness had 3 affected children. Her son had bilateral preauricular and cervical fistulae, conductive hearing loss, and one kidney 1/3 smaller than the other. The daughter, who died of pneumothorax and immature lung development 4 hours after birth, had bilateral preauricular pits without cervical fistulae, no left kidney or ureter, traces of renal tissue on the right, and some features of the Potter syndrome. A third child had preauricular pits, cervical fistulae, a nonfunctioning left kidney, and a hypoplastic right kidney. A wide spectrum and high incidence of kidney abnormalities are associated with the preauricular pit syndrome, which can be present with or without cervical fistulae. All patients with renal dysgenesis or agenesis should be examined for preauricular pits because of the high possibility of recurrence of renal anomalies in these families. (10 refs.)

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2258 **JAN, JAMES E.; TZE, WAH JUN; JOHNSTON, ALBERT C.; & DUNN, HENRY G.** Familial congenital monochromatism, cataracts, and sensorineural deafness. *American Journal of Diseases of Children*, 130(12):1349-1350, 1976.

The symptoms of congenital monochromatism, cataracts, bilateral nonprogressive sensorineural deafness, and hyperinsulinism in 2 sisters who are members of an unaffected family, along with labyrinthine dysfunction in 1 of them, appear to comprise an undescribed syndrome which is inherited in an autosomal recessive pattern. Congenital monochromatism, which is a rare autosomal recessive disorder, is generally associated with intense photophobia, nystagmus, and amaurosis without any additional anomalies. Tests on immunoreactive insulin levels, growth hormone levels, blood glucose levels, and urinary 17-ketosteroid levels revealed subtle endocrine changes suggestive of a disturbance of hypothalamic function. (6 refs.)

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2259 **KAPLAN, PAIGE; HOLLENBERG, ROBERT D.; & FRASER, F. CLARKE.** A spinal arteriovenous malformation with hereditary cutaneous hemangiomas. *American Journal of Diseases of Children*, 130(12):1329-1331, 1976.

A syndrome of hereditary hemangiomas is reported for 1 family in which 5 members in 3 successive generations inherited cutaneous hemangiomas in an autosomal dominant pattern and in which the 16-month-old female proband had cutaneomeningospinal angiomatosis and paraplegia resulting from an intraspinal arteriovenous malformation. Radiographic examination of the thoracolumbar spine suggested a space-occupying lesion; combined lumbar and cisternal oil myelo-

graphy showed complete obstruction of the subarachnoid space by a large intramedullary mass with multiple serpiginous defects. The condition was treated by decompression of the lesion and a second operation to reduce the size of the mass by ligating several feeding vessels. Eight months after the operation, the child could walk with a brace on the leg and some support, but required intermittent bladder catheterization. (7 refs.)

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2260 CHECK, WILLIAM. Epidemiology of spina bifida is unique. *Journal of the American Medical Association*, 238(14):1442, 1977.

An increased incidence of neural tube defects (NTDs) has been found in pregnancies of older women, but also in pregnancies of women near the age 20. The incidence and possible etiology of NTDs differ greatly among different populations, ranging from 0.8 per 1,000 among the Ashkenazim Jews in Israel to 4.5 per 1,000 in Great Britain. The high rate in Ireland is reflected in an incidence of 4.9 per 1,000 among children born in the United States to parents born in Ireland and 3.1 per thousand among children born to second- and third- generation Irish in the United States. Ashkenazim Jews in Boston have the same rate as those in Israel. Attempts to link potato blight to NTDs have yielded conflicting data. Current thinking favors an environmental instead of a genetic etiology for NTDs, but no specific agents have been suggested. In addition, family history is now being weighed in the interpretation of alpha-fetoprotein determinations, although NTD pregnancies in 3 patients out of a total of 31 having close relatives with spina bifida babies is statistically insignificant.

2261 CHECK, WILLIAM. Mass screening for open spina bifida needs careful consideration. *Journal of the American Medical Association*, 238(14):1441-1443, 1456, 1977.

Research findings on the detection of neural tube defects (NTDs) in the U.S. and Britain through measurement of alpha-fetoprotein (AFP) levels in amniotic fluid and maternal blood are discussed, and 3 policy options for screening of NTDs are explored: (1) AFP determination on all amniotic fluids obtained for reasons not related to NTDs; (2) amniocenteses and AFP determinations on all pregnancies at high risk for NTDs; and (3) maternal serum AFP determinations on all pregnancies as a screening test. Although it is inexpensive, the detection rate for NTDs of AFP determination on amniotic fluids already drawn depends on the incidence of NTDs (1-2/1,000 births in the U.S., about half the rate in Britain) and on the number of amniocenteses drawn for other purposes. If amniocentesis were performed on all high risk pregnancies, about 600 NTD fetuses would be detected, which is many times more the estimated 32 NTDs per year that would be detected by measurement of AFP only on amniotic fluids already drawn. A large-scale program of maternal serum screening of all pregnant women, a maximum of 3 million per year, would identify about 5,000 abnormal fetuses each year, but costs for fetal karyotyping on amniotic fluids with abnormal sera would be high. Explaining the test and maintaining test standards would be difficult when such large numbers of women are involved. Ongoing pilot programs should continue, and additional ones should be initiated before a program of mass screening can be established.

2262 MAHONEY, MAURICE J.; & HOBBINS, JOHN C. Prenatal diagnosis of chondroectodermal dysplasia (Ellis-van Creveld syndrome) with fetoscopy and ultrasound. *New England Journal of Medicine*, 297(5):258-260, 1977.

Fetoscopy and ultrasound were successfully utilized to detect chondroectodermal dysplasia in a 17-week-old fetus and to predict a normal fetus at 20 weeks in another woman whose previous pregnancy had resulted in a premature infant with chondroectodermal dysplasia. In Case No. 1 (healthy fetus), the use of meperidine was instrumental in obtaining a sonogram showing a fully outstretched immobile limb, which could not have been accomplished with an active fetus. The subsequent fetoscopy in Case No. 1 was unsatisfactory, however, because of large amounts of meconium pigments in the amniotic fluid. In Case No. 2, both ultrasound and fetoscopy played an important role in the diagnosis. Heretofore, diagnosis of genetic malformation syndromes, unless associated with a chromosome abnormality,

could not be accomplished. Fetoscopy and ultrasound can be used to provide the anatomic definition of the fetus required for the accurate detection of these syndromes. However, further study of risks and diagnostic accuracy of the 2 techniques is required. (10 refs.)

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2263 **SETTINERI, WALKIRIA M. F.; SALZANO, F. M.; & DE MELO E FREITAS, MARIA J.** X-linked anhidrotic ectodermal dysplasia with some unusual features. *Journal of Medical Genetics*, 13(3):212-216, 1976.

Seventy-seven of 85 members of a family with several members affected with hypodontia, hypotrichosis, and hypohidrosis were examined clinically and compared with an equal number of matched controls. Significant differences between both male and female carriers of the gene for anhidrotic (or hypohidrotic) ectodermal dysplasia and their controls were found in relation to the quantity and texture of head hair and in the distribution of body hair. More than half of the males showed precocious baldness. The average of missing teeth was 12 among men and 2 among women. Male and female carriers of the gene consistently presented 42 percent and 60 percent of the normal average of sweat pores, respectively, and a much higher degree of asymmetry. Almost all obligate female carriers show the condition, although not with the same intensity as in males. Inheritance of X-linked anhidrotic ectodermal dysplasia seems to be the result of a dominant sex-linked gene with 78 percent to 87.5 percent penetrance in the females. (16 refs.)

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2264 **ALFARO, S. KOFMAN; SAAVEDRA, D.; OCHOA, S.; SCAGLIA, H.; & *PEREZ-PALACIOS, G.** Pseudohermaphroditism due to XY gonadal absence syndrome. *Journal of Medical Genetics*, 13(3):242-246, 1976.

An incomplete form of male pseudohermaphroditism is described in a 21-year-old phenotypic female with agonadism and a 46,XY chromosome complement. Functional endocrine studies evaluated pituitary gonadotropin function, pituitary reserve and responsiveness, and gonadal endocrine function. The basal levels of plasma luteinizing hormone and follicle stimulating hormone were found to be persistently raised. A pulsatile pattern of release of both gonadotropins was observed. Pituitary response to exogenous stimulation with synthetic hypothalamic decapeptide was normal. Data demonstrated extremely low levels of circulating testosterone and estradiol with a lack of response to the human chorionic gonadotropin stimulus. A careful exploratory laparotomy revealed absence of uterus, Fallopian tubes, the Mullerian portion of the vagina, gonads, and Wolffian derivatives. A dissociation of testosterone and the so-called Jost substance effects during early sexual development may explain the findings in this unusual abnormality designated as the XY gonadal absence syndrome. (27 refs.)

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2265 **JUBERG, RICHARD C.; & GERSHANIK, JUAN J.** Cervical vertebral fusion (Klippel-Feil) syndrome with consanguineous parents. *Journal of Medical Genetics*, 13(3):246-249, 1976.

A white female infant with the cervical vertebral fusion (Klippel-Feil) syndrome is described. The patient's congenital malformations included short neck, restriction of cervical movement, and low posterior hairline. A hearing deficiency was detected at age 24 months. X-ray examination showed anomalous development of the first cervical vertebra and incomplete segmentation between C-2 and C-3 and between C-3 and C-4. The case was classified as type II with variable cervical fusion on the basis of radiological criteria. The mother and father were consanguineous, related as third cousins, with 5 ancestors common to both parents 4 generations ago. This resulted in a coefficient of inbreeding equivalent to a second cousin relationship. Findings suggest evidence of genetic heterogeneity for this clinical class, there apparently being both a dominant and a recessive gene producing the phenotype.

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2266 Screening for neural-tube defects. *Lancet*, 1(8026):1345-1346, 1977. (Editorial)

Participants in the United Kingdom Collaborative Study for Neural-Tube Defects investigated the questions what proportion of fetuses with anencephaly or open spina bifida can be detected, in time for abortion, by measuring the maternal serum alpha-fetoprotein in all pregnant women. Women who have previously given birth to an infant with a neural-tube defect are at a risk of 1 in 40 of producing a child with open spina bifida and an overall risk of 1 in 20 of producing a child with a neural-tube defect. These women can be offered amniocentesis, measurement of amniotic fluid alpha-fetoprotein, and termination of pregnancy if alpha-fetoprotein levels are grossly higher than in normal pregnancies. Detection rate by serum measurements can be as high as 90 percent in anencephalics and almost 80 percent in spina bifida fetuses.

2267 **WALD, N. J.; CUCKLE, H.; BROCK, J. H.; PETO, R.; POLANI, P. E.; & WOODFORD, F. P.** Maternal serum-alpha-fetoprotein measurement in antenatal screening for anencephaly and spina bifida in early pregnancy. *Lancet*, 1(8026):1323-1332, 1977.

The efficiency of maternal serum-alpha-fetoprotein (AFP) measurement was assessed as a method for screening for neural tube defects in fetuses. The study included 18,684 single pregnancies and 163 twin pregnancies without fetal neural tube defects and 301 single pregnancies with fetal neural tube defects. This last group included 146 with anencephaly, 142 with spina bifida, and 13 with an encephalocele. Results demonstrate that the best time for detecting open spina bifida is at 16-18 weeks gestation. In addition, serum AFP cutoff levels are better expressed as multiples of a normal median in that they are easier to derive and more stable than percentiles. At 16-18 weeks of pregnancy, 88 percent of cases of anencephaly, 79 percent of open spina bifida, and 3 percent of normal single pregnancies had AFP levels greater than 2.5 times the median of unaffected pregnancies. The results of this study indicate that screening pregnant women by measuring the concentration of AFP in their serum will effectively select women for ultrasonography and amniocenteses so that neural tube defects may be diagnosed in utero. (23 refs.)

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2268 **GOUJARD, J.; & RUMEAU-ROUQUETTE, C.** First-trimester exposure to progestagen-oestrogen and congenital malformations. *Lancet*, 1(8009):482-483, 1977. (Letter)

A prospective survey of maternal exposure to progestagen/estrogen during the first trimester and outcome of pregnancy was conducted from 1963 to 1969. Of the 12,764 women surveyed (who delivered 12,895 infants), 216 gave birth to malformed infants. The control group consisted of 11,225 women. Five (1.5 percent) of the 335 women who received a testosterone derivative and 15 (1.8 percent) of the 830 who received a progesterone derivative gave birth to malformed babies; these rates were not significantly different from the expected frequencies. The rates of congenital heart defects observed in the group of mothers who received progestagen/estrogen compound and in the control group were 4.29/1,000 and 4.07/1,000, respectively. The rates of skeletal anomalies were 4.29/1,000 in the treated group and 5.29/1,000 in the control group. The number of microcephalics seemed high in the treated group, the rate being 3.4/1,000 (4/1,165) as compared with 0.6/1,000 (6/9,822) in the untreated group; the difference was significant at 1 percent. No definitive evidence for the teratogenicity of hormonal pregnancy tests was shown. Nevertheless, it would be wise to discontinue their use. (4 refs.)

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2269 Folates and the fetus. *Lancet*, 1(8009):462, 1977. (Editorial)

Epidemiological investigations have established a relation between fetal malformations and defective folate metabolism, but a direct causal association has yet to be shown. Most studies to date have been retrospective and limited in scope, however. The association has also been confirmed by prospective epidemiological inquiry. Hibbard examined 805 women in early pregnancy and found that the frequency of fetal malformations among 135 women with red-cell folate concentrations of less than 130ng/ml was 4 times greater than that of 670 women with values above 130ng/ml. Recently, Smithells et al. examined 900 mothers in the first trimester of pregnancy and showed that the mean red-cell folate of the 6 women who later gave birth to an infant with a neural-tube defect was 141ng/ml, compared with a mean of 228ng/ml for the controls. In this study, the difference in red-cell folate between cases and controls contrasted sharply with the small difference between social classes. (8 refs.)

2270 **ORNOY, ASHER; BENADY, SAM; KOHEN-RAZ, REUVEN; & RUSSELL, ALEX.** Association between maternal bleeding during gestation and congenital anomalies in the offspring. *American Journal of Obstetrics and Gynecology*, 124(5):474-478, 1976.

The incidence of maternal bleeding complicating the pregnancies of 326 children examined during a 3-year period was surveyed. The group was divided into 153 control Ss, 63 children with congenital anomalies (excluding children with central nervous system anomalies), and 110 children with congenital abnormalities of the central nervous system or with psychomotor retardation. The mothers from the 3 groups were of similar socioeconomic class, ethnic origin, and chronological age. A history of bleeding during pregnancy was significantly ($p<0.01$) more frequent in children with congenital anomalies of the central nervous system and/or psychomotor retardation (33 percent) and in children with congenital anomalies of other systems (29 percent) than in control children (12 percent). Most examples of bleeding started in the first trimester of pregnancy. When diseases of known hereditary etiology were excluded, the incidence of bleeding starting in the first trimester rose to 25 percent in the group with congenital anomalies not of the central nervous system and to 28 percent in the group with central nervous system anomalies or psychomotor retardation, as opposed to only 10 percent in the control group. (21 refs.)

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2271 **VANDERSCHUEREN-LODEWEYCKX, M.; & LAURENCE, B. M.** hCG test before surgery for bilateral cyptorchidism? *Journal of Pediatrics*, 91(1):159-160, 1977. (Letter)

Since administration of human chorionic gonadotropin (hCG) can stimulate prepubertal testes to increase production of testoterone to adult male levels, hCG stimulation can help to evaluate whether or not testes are present in clinically cryptorchid boys. A single determination of plasma testosterone does not distinguish whether or not Leydig cells are present in prepubertal boys. But since testosterone levels will increase after stimulation with hCG if testicular tissue is present, the preoperative detection of tissue-producing testosterone in prepubertal cryptorchid boys may obviate the need for surgical exploration, or indicate that the surgeon should not give up until he finds the hidden organs. (5 refs.)

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2272 **BURTON, BARBARA K.; & NADLER, HENRY L.** Nager acrofacial dysostosis. *Journal of Pediatrics*, 91(1):84-86, 1977.

Mandibulofacial dysostosis with limb malformations is a syndrome distinct from mandibulofacial dysostosis (Treacher-Collins syndrome) and has been referred to as Nager acrofacial dysostosis. A 7-year-old Puerto Rican girl with the syndrome, offspring of a marriage of first cousins, is described. Her facies was considered typical, with dysostosis, hypoplasia of malar eminences, slanting palpebral fissures, absence of lashes on the medial third of the lower lid, and micrognathia. Severe reduction abnormalities of the upper limbs were also noted. The syndrome is autosomal recessive

and must be distinguished from the syndrome of mandibulofacial dysostosis (an autosomal dominant predisposition with variable expressivity) for appropriate genetic counseling. (8 refs.)

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2273 **MELNICK, MICHAEL.** Conflict within the "community" of human malformation syndromes. *Journal of Pediatrics*, 90(4):663, 1977. (Letter)

The concept of a "community" of face-limb malformations advanced by Kaplan and associates is rejected. The features and frequency of occurrence in orofacialdigital syndromes as outlined in their article are often incorrect. The notion that the sharing of many features reflects similarities in pathogenesis is highly presumptive and speculative, given the present state of knowledge, and it is absurd to construct a nosological classification for syndromes on this basis. There is no *a priori* reason to believe that mutations at autosomal dominant, autosomal recessive, and X-linked loci that are included in this community all initiate the same mechanism, or that in any one syndrome in this community the various organ system malformations are associated with the same aberrant developmental mechanism. (7 refs.)

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2274 ***PINSKY, LEONARD; **FRASER, F. CLARK; KAPLAN, PAIGE; & CUMMINGS, CARL.** Conflict within the "community" of human malformation syndromes: replies. *Journal of Pediatrics*, 90(4):663-664, 1977. (Letters)

The phenotypic community approach to the classification of human malformation syndromes is based on the assumption that when several malformations are associated in several syndromes, the underlying developmental errors are likely to have something in common. This does not imply that patients with a single malformation acquire that malformation in the same or even similar ways. The composition of any phenotypic community of dysmorphic syndromes must be considered provisional. Hypotheses regarding a pathogenetic community among members of a dysmorphic syndromal community imply nothing about their etiologies or primary teratogenic bases. These limitations do not nullify the usefulness of grouping overlapping patterns of malformations in order to appreciate their phenotypic community and to attempt to perceive their pathogenetic community. (7 refs.)

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2275 **RICCARDI, VINCENT M.** Conflict within the "community" of human malformation syndromes. *Journal of Pediatrics*, 90(4):662-663, 1977. (Letter)

The grouping of patients with face/limb malformation syndromes into a "community," ostensibly to enhance understanding of the pathogenesis of these disorders, may be misleading. In grouping patients with similar morbid states, it is critical to distinguish malformations that are homologous to each other from malformations that are analogous to each other. The notion of a "community of malformation syndromes" will be useful in direct proportion to the care with which architects of this community are careful about their planning and criteria for inclusion. (2 refs.)

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2276 ***FITCH, NAOMI; & SMITH, DAVID W.** Syndromology. *Journal of Pediatrics*, 90(5):852-853, 1977. (Letter)

Fitch suggests that before assigning an infant to a syndrome on the basis of its having a majority of features in common with a particular syndrome, it is important to consider the embryology of each

anomaly. Anomalies are often on a continuum of embryological development, and consideration of the different stages of development can make classification more simple. In a reply, Smith notes that anomalies should be interpreted from a developmental point of view in order to determine whether some or all of the defects may be the consequence of a single localized early problem in morphogenesis. (3 refs.)

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2277 **ODIEVRE, M.; PIGE, G.; & ALAGILLE, D.** Congenital abnormalities associated with extrahepatic portal hypertension. *Archives of Disease in Childhood*, 52(5):383-385, 1977.

In many cases of extrahepatic portal tension (EPT), the cause is obscure, and a developmental defect can be inferred. The association of EPT with congenital abnormalities is reviewed in a population of 30 children (ages ranging from 6 months to 16 years) with an EPT of unknown origin (group I) and 17 children (ages ranging from 8 months to 6 years) with a neonatal history of umbilical vein catheterization or omphalitis (group II, controls). Congenital abnormalities were present in 12 Ss from group I and 2 Ss from group II, the most frequent being cardiac and/or vascular abnormalities (5 cases). Abnormality of the urinary tract was noted in 3 Ss; abnormal biliary tract and absence of periportal fibrosis were found in 2; Turner's syndrome was present in 1; and 6 Ss in group I had several abnormalities. These results support the view that some cases of extrahepatic portal hypertension are congenital in origin. (15 refs.)

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2278 **VAIZEY, M. J.; SANDERS, M. D.; WYBAR, K. C.; & *WILSON, J.** Neurological abnormalities in congenital amaurosis of Leber. *Archives of Disease in Childhood*, 52(5):399-402, 1977.

A retrospective study was made of 30 children diagnosed as having Leber's amaurosis (congenital retinal blindness). Twenty-four patients presented with severe and permanent blindness; 6 Ss, although also presenting with marked visual loss, were later found to be less severely affected. Air encephalography in 7 of the MR infants revealed mild ventricular dilatation and widening of the cerebral sulci in 6, irregularities in outline of the chiasm or optic nerves in 2, enlargement of interpeduncular and chiasmatic cisterns in 2, enlargement of the cisterna in 3, and cerebellar atrophy in 3. Intravenous pyelograms were abnormal in 2 out of 8 patients examined from the main group of 24 Ss; mental status was found to be moderately or severely subnormal in 11 Ss. One of 6 Ss in the second group was found to be severely MR, although no neurological deficits were observed in the group. (22 refs.)

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2279 **HYNDMAN, W. B.; ALEXANDER, D. S.; & MACKIE, K. W.** Chondrodystrophia calcificans congenita (the Conradi-Hunermann syndrome). *Clinical Pediatrics*, 15(4):317-321, 1976.

An infant with chondrodystrophia calcificans congenita (Conradi-Hunermann syndrome), stippled epiphyses, chondrodyplasia epiphysialis punctata, and Conradi's disease, and a review of recent pertinent literature are presented. This rare congenital syndrome is characterized by X-ray finding of small calcific densities in epiphyses during the first 3 or 4 years of life. Other associated abnormalities include micromelia, "saddle nose" deformity, flexion contractures, cataracts, and dermopathies. Antenatal diagnosis of Conradi's disease in the proband was obtained by abdominal X-ray for fetal maturity which showed stippling at ankles, knees, pubic and ischial bones, and femoral epiphyses. Radiographic survey of the newborn male infant revealed characteristic calcific stippling at shoulders, wrists, hips, knees, and feet. The pathogenesis is obscure. No specific treatment has been found other than control of

infections and surgical correction of skeletal deformities and cataracts. (17 refs.)

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2280 **HADDY, THERESA, B.; BAILIE, MICHAEL D.; BERNSTEIN, JAY; KAUFMAN, DONALD B.; & ROUS, STEPHEN N.** Bilateral diffuse nephroblastomatosis: report of a case managed with chemotherapy. *Journal of Pediatrics*, 90(5):784-786, 1977.

A case is reported of a child who had multiple congenital anomalies and nodular renal blastema and whose lesion underwent neoplastic proliferation to bilateral diffuse nephroblastomatosis. Congenital anomalies included left hemihypertrophy, macroglossia, enlarged clitoris, occipital hemangioma, patent ductus arteriosus, and enlarged spleen and kidneys. Biopsy at age 3 months showed nodular renal blastema. At age 14 months further biopsy demonstrated bilateral diffuse nephroblastomatosis. The patient was treated with a 15 month course of actinomycin D and vincristine, and a third biopsy at 26 months showed almost normal renal structure. It is noted that MR, microcephaly, pseudohermaphroditism, and growth retardation are often associated with nephroblastomatosis. Nodular renal blastema has been predominantly associated with trisomy 18. (10 refs.)

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2281 **BOND, JANE V.** Wilms' tumour, hypospadias, and cryptorchidism in twins. *Archives of Disease in Childhood*, 52(3):243-245, 1977.

Twin boys, both of whom had hypospadias and bilateral undescended testes, each developed a left-sided Wilms' tumor. The first boy, diagnosed at 15 months as having a large inoperable multifocal tumor of the left kidney, died after developing a local recurrence and pulmonary metastases. The second boy was diagnosed 1 month after the first twin as having a small tumor involving only the upper pole of the kidney, which was completely encapsulated with no involvement of the renal vein. He was given a 4-day course of actinomycin D after surgery and a course of radiotherapy to the left hemiabdomen, and remains disease-free 12 years later. The histological appearance of the tumor was similar in each twin, with both tumors composed mainly of rhabdomyosarcomatous tissue with areas of primitive mesenchyme and attempts at early tubule formation. However, the tumors did not develop at the same rate and did not show the "mirror-image" pattern suggested for embryonal tumors in identical twins. (14 refs.)

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MEDICAL ASPECTS — Etiologic Groupings
Prematurity and low birthweight

2282 **STEWART, ANN L.; TURCAN, D. M.; RAWLINGS, GRACE; & REYNOLDS, E.O.R.** Prognosis for infants weighing 1000g or less at birth. *Archives of Disease in Childhood*, 52(2):97-104, 1977.

Survival rates for infants weighing 1,000g or less who were treated at a hospital neonatal unit during the period 1966-1975 and the outcome for those infants who were born between 1966 and 1974 are reported. Of the 148 infants weighing <1,000g, 48 (32 percent) survived the neonatal period. The neonatal survival rates for infants weighing <750g and 751-1000g were 8 percent and 41 percent, respectively. Nine of the 48 survivors died later, leaving 39 (26 percent) long-term survivors whose progress continued to be followed. Twenty-seven children with a median

birthweight of 899g (range 648-998g) and median gestational age of 28 weeks (range 24-35 weeks), who were born between 1966 and 1974, were monitored at ages between 15 months and 8 years (median, 3 years). Twenty-one (78 percent) had no detectable abnormalities; 2 (7 percent) had major handicaps; and 4 (15 percent) had minor handicaps. Results indicate that the prognosis for infants weighing 1,000g is now better with available intensive care methods than in the past. (35 refs.)

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2283 **DAUNCEY, M. J.; SHAW, J. C. L.; & URMAN, J.** The absorption and retention of magnesium, zinc, and copper by low birth weight infants fed pasteurized human breast milk. *Pediatric Research*, 11(10):1033-1039, 1977.

The absorption and retention of magnesium, copper, and zinc were measured in 6 preterm infants (mean gestation 29 weeks), 2 term small-for-gestational age infants (<1.5kg birthweight), and a fetus of equivalent gestational age *in utero*. Light for date infants absorbed 5.7mg/kg of magnesium a day as compared to 5.3mg/kg/day for preterm infants; light for date babies also retained 5.4mg/kg/day while preterms retained only 2.8mg/kg/day. The balance for zinc was negative in preterm infants until the 60th day of life. In contrast, light for date infants had a positive balance and absorbed an average of 0.44mg/kg/day. In the preterm infants, balance for copper was negative on average until the 35th day of life. Three of 6 preterm infants averaged a net loss of 0.73mg of copper during the study period; the remaining 3 retained an average of 1.74mg. The light for date infants absorbed and retained 0.045mg/kg/day. It is concluded that breast milk supplies enough magnesium but insufficient copper and zinc for preterm infants, with the result that their body stores of copper and zinc cannot develop normally. Inability to retain these minerals may be the result of an immature alimentary tract. (26 refs.)

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2284 **ASSAEL, B. M.; CACCAMO, M. L.; GERNA, M.; *LATINI, R.; MANDELLI, M.; MARINI, A.; SERENI, F.; & TOGNONI, G.** Effect of exchange transfusion on elimination of theophylline in premature neonates. *Journal of Pediatrics*, 91(2):331-332, 1977.

Blood theophylline concentrations were measured before and after exchange transfusions in 3 premature newborn infants who were treated successfully with the drug from the first day of life for primary apnea. The drug was administered as aminophylline (theophylline ethylenediamine; 1mg equivalent to 0.8mg theophylline). Exchange transfusion was indicated for severe coagulation abnormalities of Rh incompatibility, and was undertaken 3 to 8 hours after the last dose of the drug. Blood levels of theophylline were much lower in infants who had received 1 or 4 doses of the drug than in the infant who had been treated for 4 days, suggesting an accumulation of the drug in the latter case. The percentage of drug exchanged by the procedure ranged from 16.9 to 29.9, indicating that the amount of theophylline eliminated by exchange transfusion is so limited that no adjustments of therapeutic schedule are necessary when the procedure is performed during the drug's elimination phase. (8 refs.)

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2285 **CANALES, ELIAS S.; LASSO, PEDRO; MURRIETTA, SUSANA; FONSECA, EUGENIA; SORIA, JORGE; & *ZARATE, ARTURO.** Feasibility of suppressing and reinitiating lactation in women with premature infants. *American Journal of Obstetrics and Gynecology*, 128(6):695-697, 1977.

Bromocriptine (2.5mg, 3 times/day, days 1-8) was administered orally to 4 puerperal women (19-33 years of age) to suppress serum human prolactin levels (hPRL) and lactation for 2 weeks following

the vaginal delivery of pregnancies lasting 34-39 weeks. On the eighth-twelfth days following delivery each woman received 20mg of thyrotropin-releasing hormone (TRH) 4 times a day. Two of the 4 women exhibited milk flow after TRH injection. Oral TRH treatment continued to stimulate considerable hPRL release, and milk production was reinitiated in all the mothers and persisted for the following 4 weeks. Breast feeding was begun on the fourteenth day postdelivery. It would seem that hPRL levels, and therefore lactation, can be controlled in new mothers by the use of bromocriptine for suppressions and TRH for reinitiation. (5 refs.)

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2286 **BARLTROP, D.; MOLE, R. H.; & SUTTON, A.** Absorption and endogenous faecal excretion of calcium by low birthweight infants on feeds with varying contents of calcium and phosphate. *Archives of Disease in Childhood*, 52(1):41-49, 1977.

To determine whether large changes in the dietary calcium /phosphate (Ca/P) ratio induce changes in the absorption, retention, and endogenous fecal excretion of Ca in low birthweight newborn infants, experimental milk formulas varying widely in calcium and phosphate content were given to 13 low birthweight infants. Ca and P were measured in feed, urine, and feces between carmine markers corresponding to a metabolic period of 48 hours. One feed was enriched with ^{46}Ca, which could then be measured in urine and feces to indicate true absorption of Ca and endogenous excretion into the bowel. Absorption of Ca was proportional to Ca intake and independent of P intake. Endogenous fecal excretion varied widely between different infants (4-150mg/d) and seemed to be independent of both Ca and P intakes. Urine Ca was negligible and could therefore be discounted. Although the retention of Ca tended to be much greater on a high Ca intake, the variability in retention between infants was large, paralleling the variability in endogenous fecal excretion. This process may account for the variability found in newborn infant plasma Ca concentrations. It would also seem that the ratio of Ca to P, in terms of absorption, is not as important as previously thought. (13 refs.)

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2287 **SUTTON, A.; MOLE, R. H.; & *BARLTROP, D.** Urinary and faecal excretion of marker calcium (^{46}Ca) by low birthweight infants. *Archives of Disease in Childhood*, 52(1):50-55, 1977.

To explore the reasons for variability in endogenous fecal excretion of calcium (Ca) in a previous investigation, Ca enriched in ^{46}Ca was given to low birthweight infants in a single feed. The urinary specific activity increased with time after the marked feeding was given, reaching a maximum about 4 hours later and then falling exponentially for as long as observations were made. It may be possible to use this rate to determine the size of the exchangeable calcium pool, usually about 200mg/kg, by extrapolating back to one hour. Accurate fecal collection for estimation of ^{46}Ca is essential for accurate determination of true absorption and endogenous fecal excretion of natural Ca. No marker was detectable in feces excreted later than 48 hours after the first stool containing marker in the 5 infants examined. (5 refs.)

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2288 **COATES, ALLAN L.; BERGSTEINSSON, HORDUR; DESMOND, KATHARINE; OUTERBRIDGE, EUGENE W.; & BEAUDRY, PIERRE H.** Long-term pulmonary sequelae of premature birth with and without idiopathic respiratory distress syndrome. *Journal of Pediatrics*, 90(4):611-616, 1977.

Flow volume curves obtained while breathing air were compared to those obtained while breathing 80 percent helium and 20 percent oxygen in 7 normal children born at term, 7 children born prematurely with no neonatal lung disease, and 7 prematurely born children who developed respiratory distress syndrome (RDS) after birth and required mechanical ventilation. All children were between 6 and 10 years of age at the time of the study. Expiratory flow rates in air in both groups of prematurely born children were lower than flow rates of children born at term. Volumes of isoflow

were higher in the survivors of RDS than those in children born at term. Differences in flow rates in air suggest an increase in large airway resistance in both groups of prematurely born children, which may be secondary to growth retardation related to prematurity. Elevated volumes of isoflow in the RDS group suggest that the resistance of the smaller airways makes up an increased fraction of the total airway resistance, suggesting in turn that premature birth may lead to increased resistance in the large airways, and that RDS or therapy for RDS may lead to elevation of resistance in the small airways. (29 refs.)

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2289 **VOHR, BETTY R.; ROSENFIELD, ABBY G.; & OH, WILLIAM.** Umbilical hernia in the low-birth-weight infant (less than 1,500gm). *Journal of Pediatrics*, 90(5):807-808, 1977.

The incidence and spontaneous closure rate of umbilical hernia in infants weighing less than 1,500gm at birth were investigated. Results demonstrate that 75 percent of these infants had umbilical hernia at 3 months of age, a finding consistent with other reports of this defect. There also was a correlation between the occurrence of umbilical hernia and the incidence of respiratory distress syndrome (RDS) during the neonatal period unrelated to gestational age or birth weight. It may be postulated that the high incidence of umbilical hernia is a combined result of inadequate development of anterior abdominal musculature and fascia because of short gestation and increased intra-abdominal pressure associated with RDS. (4 refs.)

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2290 **NORTH, A. FREDERICK, JR.; & MACDONALD, HUGH M.** Why are neonatal mortality rates lower in small black infants than in white infants in similar birth weight? *Journal of Pediatrics*, 90(5):809-810, 1977.

Perinatal mortality data in the U.S. indicate that low birthweight black newborn infants are more likely to survive the neonatal period than are white infants of the same birthweight. This study explored whether this difference is due to characteristics associated with the lower socioeconomic status of blacks in American society, characteristics perhaps less noxious than those causing lower birthweights is populations of higher economic status. Care by a private attending obstetrician was used as the indicator of socioeconomic status. Results demonstrate that in most birthweight categories, black infants were more likely to survive than white infants, regardless of socioeconomic status. In infants of both races, lower socioeconomic status was not associated with higher survival. These findings suggest that black infants may be endowed genetically with a greater capacity to survive at low birthweight than white infants. (1 ref.)

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2291 ***PETRICH, C.; VOSS, H. V.; GOBEL, U.; **GRAEBER, JANET; & OSKI, FRANK.** More on the relationship of vitamin E deficiency in the low-birth-weight infant. *Journal of Pediatrics*, 91(3):511-513, 1977. (Letters)

Petrich, Voss, and Gobel suggest that the clinical importance of vitamin E deficiency anemia in the premature infant has not been established and that, consequently, the intramuscular administration of vitamin E is unwarranted therapy. Graeber and Oski reply that inconsistencies in previous studies have resulted from a failure to appreciate that vitamin E deficiency alone is probably insufficient to produce a hemolytic anemia but must act in concert with a diet rich in polyunsaturated fats and the administration of oxidant compounds such as iron. No adverse effects have been observed with vitamin E, which, when administered early, has been reported to reduce the incidence of retrolental fibroplasia, bronchopulmonary dysplasia, and the rate of red cell destruction in premature infants. (20 refs.)

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2292 **FISHER, DELBERT A.** Thyroid function in the premature infant. *American Journal of Diseases of Children*, 131(8):842-844, 1977. (Letter)

Knowledge of the general pattern of development of thyroid function in the intrauterine fetus may help in accurately assessing it in small premature infants for whom adequate standards of thyroid function measurement in cord blood are not available. The interval between 20 and 30 weeks gestation represents the critical period of hypothalamic-portal system maturation, during which fetal thyroid function increases from hypothyroid to presumably euthyroid levels. Neuroendocrine feedback control also develops during this time and matures progressively through 3 to 5 postnatal weeks. This maturation is reflected in the progressive increase in free T^4/TSH and free T^3/TSH ratios between 20 to 30 weeks' gestation and 3 to 5 postnatal weeks. However, in contrast to infants 32 to 35 weeks gestation and older, a sufficiently elevated serum TSH concentration as a marker for an inadequate supply of thyroid hormones to pituitary tissue may not be an accurate guide to the need for thyroid hormone in premature infants younger than 30 weeks gestational age. Indications for thyroid hormone treatment in small premature infants must be developed by establishing objective criteria for adequacy of tissue hormone supply relative to free hormone concentrations. (29 refs.)

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MEDICAL ASPECTS — Etiologic Groupings
Respiratory disorders

2293 **BRICE, JOHN E. H.; & WALKER, COLIN H. M.** Changing pattern of respiratory distress in newborn. *Lancet*, 2(8041):752-754, 1977.

A retrospective study of data obtained from the neonatal and maternal case records for babies admitted to the special care baby unit at Ninewells Hospital, Scotland, over a 12-month period showed that transient tachypnea of the newborn (TTNB) lasting more than 24 hours was as common as respiratory distress syndrome (RDS). A comparison of the frequency of some perinatal factors relating to RDS and prolonged TTNB revealed that: (1) Differences in mean gestational age were highly significant, the RDS babies being mainly early preterm and the prolonged TTNB babies being late preterm to term: (2) In babies with prolonged TTNB, forceps delivery and cesarean section were more common, but no association was found between TTNB and breech delivery; (3) Crying vital capacity (VCV) was lower in babies delivered by cesarean section and did not attain the CVC of a 6-hour-old baby delivered vaginally until about 3 days of age. The difference in the means for the 2 groups was statistically significant at 15 minutes, 1 to 6 hours, day 1, and day 2. This latter finding indicates that babies delivered by cesarean section are at a considerable disadvantage during the first few days of life. Most babies with transient RDS should be diagnosed as mild TTNB, which in its more prolonged and severe form is as common a cause of neonatal respiratory distress as RDS. Clarification and standardization of the diagnostic criteria of RDS, TTNB, and the aspiration syndromes are needed. (13 refs.)

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2294 **SINGER, ALLAN D.; THIBEAULT, DONALD W*.; HOBEL, CALVIN J.; & HEINER, DOUGLAS C.** Alpha^1-antitrypsin in amniotic fluid and cord blood of preterm infants with the respiratory distress syndrome. *Journal of Pediatrics*, 88(1):87-93, 1976.

Concentrations of total protein, alpha^1-antitrypsin (a^1-AT), and alpha^2-macroglobulin were measured in the amniotic fluid of 125 pregnancies (11-42 weeks gestation) and in the cord blood of 66 newborn infants, to determine their influence in respiratory distress syndrome (RDS). In both amniotic fluid and cord blood, the a^1-AT level is linearly related to the total protein. Intrapartum complications are associated with a significant lowering of the cord a^1-AT. The cord blood a^1-AT value did not appear to be related to amniotic fluid surface active material. However, infants with negative foam stability tests (a measure for amniotic fluid surface active material) and infants with intermediate or positive foam stability tests associated with an increase in amniotic fluid a^1-AT had RDS. There were 23 infants with cord a^1-AT less than 0.2gm/dl and with an intermediate or positive foam test; 19 of these had respiratory difficulties. Respiratory disturbances may develop on the basis of pulmonary fluid and protein transduction and/or reduction or inhibition of pulmonary surfactant incident to intrapartum complications and despite apparently adequate prenatal lung surfactant.

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2295 **BONTA, BEDFORD W.; UAUY, RICARDO; *WARSHAW, JOSEPH B.; & MOTOYAMA, ETSURO K.** Determination of optimal continuous positive airway pressure for the treatment of IRDS by measurement of esophageal pressure. *Journal of Pediatrics*, 91(3):449-454, 1977.

Optimal continuous positive airway pressure (CPAP) was determined in 10 infants with idiopathic respiratory distress syndrome by monitoring esophageal pressure during initial application of CPAP. When optimal airway pressure was applied, there was a marked increase in esophageal pressure and in arterial oxygen tension. Further increase in CPAP did not produce subsequent appreciable increases in esophageal pressure, while arterial oxygen tension decreased slightly and arterial carbon dioxide tension increased. Less than optimal CPAP increases fraction concentration of inspired oxygen requirements and may increase the associated risk of bronchopulmonary dysplasia. Excessive levels of CPAP may increase the risk of pneumothorax. (25 refs.)

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2296 **GROSS, THOMAS L.; & COOK, WILLIAM A.** Tests for maturity of fetal lung. *New England Journal of Medicine*, 297(12):671, 1977. (Letter)

With reference to fetal lung maturity, the foam stability test (FST) has generally been considered a screening test, and the lecithin/sphingomyelin (L/S) test has been considered the more standard procedure. However, it is suggested that occasionally the FST can detect accelerated fetal maturity more accurately than the L/S ratio. In a series of patients studied, combination of the L/S ratio with the FST showed 11 patients in whom 1 or both tests indicated immaturity. When both tests were used in conjunction, there were no false positive results and 1 false negative result. Four patients with severe toxemia at 32 weeks gestation had double positive FST in the presence of L/S ratios of less than 1.5. Thus in these patients accelerated fetal lung maturity was detected by the EST and not by the L/S ratio. It is concluded that in high risk pregnancies in which preterm delivery is anticipated, both the L/S ratio and the FST should be employed to reduce false negative results in the assessment of fetal lung maturity. (12 refs.)

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2297 **DUENHOELTER, JOHANN H.; & PRITCHARD, JACK A.** Fetal respiration: a review. *American Journal of Obstetrics and Gynecology*, 129(3):326-338, 1977.

Recent studies of the functional status of the respiratory tract in human and animal fetuses

indicate that the normal fetus makes active respiratory motions in utero throughout much of pregnancy. A tidal flow of water and soluble substances between the lung and amniotic sac has been established, suggesting that the lung may be involved in exchange between fetal compartments. Deposition in the lung of particulate matter contained in amniotic fluid is no longer believed to be proof of pathologic aspiration. It is not yet clear whether monitoring fetal respiratory efforts will provide an index of fetal well-being or if pharmacologic stimulation or suppression of respiratory efforts in utero will be of any therapeutic value. (74 refs.)

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2298 SYBULSKI, S. Effect of antepartum betamethasone treatment on cortisol levels in cord plasma, amniotic fluid, and the neonate. *American Journal of Obstetrics and Gynecology*, 127(8):871-874, 1977.

In light of evidence that pharmacologic doses of betamethasone administered prior to premature deliveries decrease the incidence of respiratory distress syndrome in the offspring, the effect of such betamethasone treatment on adrenal function in the fetus and newborn infant was investigated. Antepartum betamethasone was administered in pregnancies which terminated at less than 37 weeks' gestation. Treatment resulted in a rapid and significant decrease in cord plasma cortisol levels. Mean values ± S.E. were 5.17 ± 0.39μg/100ml in 90 untreated cases, 2.17 ± 0.32μg/100ml in 29 cases treated at least 24 hours prior to delivery, and 2.27 ± 0.38μg/100ml in 18 cases in which treatment was begun within 24 hours of delivery. The mean cortisol concentration in 5 amniotic fluid samples obtained following betamethasone administration (0.39 ± 0.19μg/100ml) was significantly less than in 7 control samples (1.85 ± 0.21μg/100ml). The findings suggest that betamethasone suppressed endogenous cortisol production by maternal and/or fetal adrenals. Nevertheless, cortisol levels in the first days of life of treated neonates were considerably greater than those in cord plasma at birth, an indication of the rapid recovery of some degree of adrenal activity in these infants. This was even the case in one infant exposed to betamethasone treatment for 6 weeks prior to birth. (15 refs.)

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2299 CHERNICK, VICTOR; AVERY, MARY ELLEN; & STRIEDER, DENISE J. Why intermittent positive pressure when normal inhalations will do? *Journal of Pediatrics*, 91(2):361-362, 1977. (Editorial)

Although intermittent positive pressure (IPP) is widely used in pediatrics to deliver aerosols or to combat atelectasis, it does not seem necessary to push air into the lungs instead of asking the patient to inhale deeply. Recent studies have suggested that IPP breathing is not only ineffective when compared to spontaneous breathing but may be harmful when used over prolonged periods of time. In the absence of benefit to the patient, coupled with some evidence of decreased delivery of the aerosol by IPP breathing, this cumbersome and expensive method of aerosol administration should be abandoned. Free flow of aerosol through a funnel shaped mask in front of the face allows inhalation of medication by a cooperative, deep breathing patient. The only indication for IPP in children is in those very few patients who have inadequate musculature of the chest wall or diaphragmatic excursion to the extent that they cannot breath deeply. (8 refs.)

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2300 KLEIN, ALAN H.; STINSON, DORA; FOLEY, BARBARA; LARSEN, P. REED; & *FOLEY, THOMAS P., JR. Thyroid function studies in preterm infants recovering from the respiratory distress syndrome. *Journal of Pediatrics*, 91(2):261-263, 1977.

Thyroid function was evaluated in 18 preterm infants recovering from the respiratory distress syndrome (RDS). Thyroxine, tri-iodothyronine,

and thyrotropin concentrations were determined by radioimmunoassay and compared with values previously observed in term infants. Serum thyroxine and tri-iodothyronine levels were initially low in preterm infants recovering from RDS, although serum iodothyronine levels approached values obtained for term infants by 4 to 6 weeks of age. The infants appeared physiologically euthyroid, as indicated by normal increments in height and weight during recovery. Normal serum thyrotropin values in these infants exclude the possibility of primary hypothyroidism. Replacement therapy appears to be unnecessary in preterm infants recovering from RDS in the absence of elevated serum thyrotropin concentrations. (8 refs.)

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2301 **ABBASSI, VAL; MERCHANT, KULSUM; & ABRAMSON, DAVID.** Postnatal triiodothyronine concentrations in healthy preterm infants and in infants with respiratory distress syndrome. *Pediatric Research*, 11(7):802-804, 1977.

In studying 12 preterm infants (26-34 weeks of gestational age), 7 of whom suffered from respiratory distress syndrome (RDS), it was found that cord blood triiodothyronine (T_3) concentrations were significantly lower in babies with RDS than in babies without RDS. There was no significant rise in T_3 concentration in RDS babies at 24 hours, and T_3 levels continued to be below normal for 3 weeks. By 4 weeks the RDS babies had levels within the normal range but still below the level of the 5 other preterm babies whose T_3 levels were comparable to those of full term babies. The hypotriiodothyroninemia found in RDS babies may indicate thyroid immaturity and suggest that thyroid hormones play a role in the maturation of lung surfactant. (24 refs.)

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2302 **COWETT, RICHARD M.; DOYLE, PETER E.; CHANDLER, BARRY D.; YAO, ALICE C.; & OH, WILLIAM.** Foam-stability test on gastric juice in neonates. *New England Journal of Medicine*, 297(14):789, 1977. (Letter)

Experimental data indicate that gastric aspirate obtained within 30 minutes of birth could serve as a useful test fluid up to the first 6 hours of life for the foam-stability test in differentiating the origin of neonatal respiratory distress. Gastric fluid was obtained half-hourly for the foam-stability test during the first 6 hours of life in 31 normal term infants. All infants had a positive foam-stability test on gastric aspirate at birth, and in 76 percent to 100 percent of cases, the gastric aspirate foam-stability test remained positive throughout the first 6 hours of life. Eleven of 13 samples were positive at 4.5 to 5.0 hours, and 6 of 6 at 5 to 6 hours after birth. Continued positive readings from the foam-stability test occurred for 6 hours despite proportionately greater amounts of gastric secretion with increasing age, as shown by the falling PH values. (2 refs.)

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2303 **SHANNON, DANIEL C.; KELLY, DOROTHY H.; & O'CONNELL, KATHLEEN.** Abnormal regulation of ventilation in infants at risk for sudden-infant-death syndrome. *New England Journal of Medicine*, 297(14):747-750, 1977.

Experimental data indicate that infants who have had an episode consistent with sudden-infant-death syndrome have a defect in the regulation of alveolar ventilation and an impaired ventilatory response to carbon dioxide breathing during quiet sleep. Ventilatory control during quiet sleep was assessed in 12 normal infants and 11 infants who had required at least 2 resuscitations because of prolonged apnea during sleep (aborted form of the syndrome). Infants with the aborted syndrome hypoventilated during quiet sleep (alveolar partial pressure of carbon dioxide, 38.9+3.5mm Hg) as compared to normal infants (35.1+1.9, $P<0.01$). In addition, the ventilatory response to carbon dioxide breathing during quiet sleep was impaired. Three infants with the aborted syndrome subsequently died during sleep at home; autopsy, done in 2 of the infants, revealed no apparent cause of death. However, impaired regulation of alveolar

ventilation can explain apnea and the need for resuscitation in some infants with the sudden-infant-death syndrome. (18 refs.)

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2304 **AVERY, MARY ELLEN; & FRANTZ, IVAN D.** To breathe or not to breathe. *New England Journal of Medicine*, 297(14):781-782, 1977. (Editorial)

The possibility of discovering a connection between the apnea of premature infants and sudden-infant-death syndrome through various tests of chemoresponsiveness or inspiratory effort is discussed. A review is conducted of various techniques utilized in recent research to challenge infants' respiratory control mechanisms (e.g., responses to small changes in concentration of inspired oxygen and carbon dioxide). Although none of these techniques or tests of ventilatory response distinguishes premature infants with apneic spells from those without such spells, theophylline and caffeine have both been found to reduce the number of apneic spells in low-birth-weight infants and substantially enhance central ventilatory output. Recent research on diminished responsiveness to carbon dioxide in preterm infants with and without apneic spells and those with "near miss" sudden infant death should be pursued to determine whether the effect is in the central nervous system or elsewhere. However, a number of factors, such as the rarity of sudden death in the first month of life, militate against establishing a relationship between the apnea of prematurity and sudden infant death syndrome. (12 refs.)

2305 **GOLDKRAND, JOHN W.; VARKI, A.; & MCCLURG, JAMES E.** Surface tension of amniotic fluid lipid extracts: Prediction of pulmonary maturity. *American Journal of Obstetrics and Gynecology*, 128(6):591-598, 1977.

Assessment of the surface tension lowering properties of an amniotic fluid lipid extract as a means of determining lung maturity compares favorably with the lecithin/sphingomyelin (L/S) ratio and is more predictive of respiratory problems. A study of surface tension in 71 newborns showed no false positive values, and 7 of the 22 infants with immature surface tension values subsequently developed respiratory distress syndrome (RDS). Surface tension values less than 56 dynes per centimeter of 120μl of extract denoted pulmonary maturity. Values greater than this denoted pulmonary immaturity. Blood and meconium contamination make the surface tension of fluid from babies with pulmonary immaturity appear mature. (28 refs.)

2306 **GABRIELE, G.; ROSENFELD, C. R.; FIXLER, D. E.; & WHEELER, J. M.** Continuous airway pressure breathing with the head-box in the newborn lamb: effects on regional blood flows. *Pediatrics*, 59(6):858-864, 1977.

Hemodynamic function was studied in 8 newborn lambs receiving continuous positive airway pressure (CPAP) delivered by a head-box. Heart rate, left ventricular pressure, and arterial blood gases were not affected by CPAP at 6 and 11mm Hg. Jugular venous pressures increased from 6.4mm HG to 18.6 and 24.2mm Hg at 6 and 11mm Hg, respectively. Cardiac output decreased approximately 20 percent at either intrachamber pressure setting. Renal blood flow fell 21 percent at 11mm Hg but did not change at 6mm Hg. Ocular blood flow fell 28 percent at 6mm Hg and 52 percent at 11mm Hg. No significant changes in blood flow were found in the brain, gastrointestinal tract, spleen, heart, or liver. CPAP applied by pressure chamber, a method of treating human hyaline membrane disease, may lead to significant alterations in cardiovascular dynamics in the neonate. (21 refs.)

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2307 **CONDORELLI, SALVATORE; & *SCARPELLI, EMILE M.** Fetal breathing: induction in utero and effects of vagotomy and barbiturates. *Journal of Pediatrics*, 88(1):94-101, 1976.

Breathing was induced in utero in mature fetal lambs by manipulation of the sciatic nerve,

electrical stimulation of the cut sciatic nerve, and injections of potassium chloride (4-16mEq) into the fetal low abdominal aorta. All 3 techniques induced breathing which lasted 40 minutes to 3 hours after stimulation ended. Thiopental (2mg/kg), sodium pentobarbital (22mg/kg), and sodium methohexital (1.0mg/kg) intravenous injections in the ewes completely inhibited fetal breathing responses. The breathing responses were not affected by bilateral cervical vagotomy.

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2308 **PARKINSON, CHRISTINE E.; HARVEY, DAVID R.; & PRYSE-DAVIES, J.** Fatty acids of phospholipids in human neonatal lung surfactant. *Pediatric Research*, 11(6):723-727, 1977.

In studying neonatal alveolar washes in 23 newborn infants postmortem (including 6 who died from hyaline membrane disease (HMD), it was found that both alpha- and beta-palmitic acid increased with gestational age on all phospholipids analyzed. Babies who were stillborn or who had died of HMD had lower proportions of beta-lecithin palmitic acid. In the HMD group these levels were significantly lower. The study also confirmed previous findings that phosphatidyl dimethylethanolamine is not present in the lung effluent of babies with respiratory distress syndrome. It would seem that the key factor in the synthesis of surfactant phospholipids is the availability of palmitic acid and the ease of its incorporation into lecithin and phosphatidyl ethanolamine. (27 refs.)

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2309 **HALLMAN, MIKKO; FELDMAN, BERNARD H.; KIRKPATRICK, ELSA; & *GLUCK, LOUIS.** Absence of phosphatidylglycerol (PG) in respiratory distress syndrome in the newborn: study of minor surfactant phospholipids in newborns. *Pediatric Research*, 11(6):714-720, 1977.

In 41 infants born with respiratory distress syndrome (RDS) phosphatidylglycerol (PG) was always absent in lung effluent, whereas lung effluent from healthy newborns and those with pneumonia or cardiovascular disease contained this phospholipid. However, phosphatidylinositol (PI) was found in 18 infants in the early stages of RDS: 13 were 35 weeks of gestation or more, 3 were offspring of diabetic mothers, and 2 had severe perinatal asphyxia. In healthy subjects PG sometimes appeared within an hour after birth, but in RDS PG did not appear until recovery from RDS. In transient tachypnea of the newborn PG was present in lung effluent but abnormally low while PI was still prominent, indicating immaturity of surfactant similar to RDS. Surfactant with PG and PI has superior surface-active properties compared to that containing PI but no PG. The failure of PG appearance following birth may precipitate RDS, especially beyond 35 weeks of gestation. Therefore PG can be used as a biochemical marker for pre- and postnatal monitoring for RDS. (35 refs.)

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2310 Steroid 'cure' of fetal lung problems can be illusory. *Journal of the American Medical Association*, 238(10):1009, 1977.

Although the administration of corticosteroids to women threatening premature delivery can lower the incidence of respiratory distress syndrome in their offspring by two thirds by accelerating lung maturation, its hazards should be recognized. Studies in rats show that administration results in metabolic deficiencies and immature brains when the animals become adult, or in inhibition of the maturation of several organs, including liver, gut, heart, and kidney. Steroids have also been shown to reduce overall growth of the human fetus and to result in neurologic deficits in newborns.

2311 Maturity of fetal lung more precisely defined. *Journal of the American Medical Association*, 238(10):1008-1009, 1977.

The maturity of fetal lung and therefore the

possibility of respiratory distress syndrome (RDS) can now be precisely determined using the lecithin to sphingomyelin (L/S) ratio and 2 minor surfactant phospholipids, phosphatidylinositol (PI) and phosphatidylglycerol (PG). In measuring amniotic fluids, the normal fetus has a high PI value and a low or nonexistent PG value. However, immediately after birth PI decreases and PG increases. Infants with RDS have high PI and PG values and an L/S ratio less than 2. Three distinct periods of lung maturity can be identified between 20 weeks gestation and term using PG, PI, and L/S ratio.

2312 **SZABO, I.; CSABA, I.; NOVAK, P.; & DROZGYIK, I.** Single-dose glucocorticoid for prevention of respiratory-distress syndrome. *Lancet*, 2(8031):243, 1977. (Letter)

Single doses (100mg intramuscularly) of prednisolone sodium succinate given to 116 women, all at 28-36 weeks gestation and all at risk of premature delivery, significantly reduced the incidence of respiratory distress syndrome (RDS) over a control group of deliveries. Uterine activity was stopped for at least 24 hours by administering fenoterol hydrobromide, and it was found that the longer the interval between the prednisolone injection and delivery, the smaller the proportion of RDS deliveries. (3 refs.)

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2313 **FARRELL, PHILIP M.; BLACKBURN, WILL R.; & ADAMS, ANTHONY J.** Lung phosphatidylcholine synthesis and cholinephosphotransferase activity in anencephalic rat fetuses with corticosteroid deficiency. *Pediatric Research*, 11(6):770-773, 1977.

Rat fetuses with adrenocortical insufficiency (produced by surgical decapitation) showed low plasma corticosterone levels as compared to littermates and were found to have diminished choline pathway activity. This abnormality was present at 21 days of gestation but not at term. Cholinphosphotransferase (CPT), the terminal catalyst of the choline pathway, also showed diminished activity in lungs of anencephalic fetuses. Dexamethasone treatment led to enhanced choline incorporation rates, and corticosteroid administration also restored CPT activity and elevated it beyond the level found in normal fetuses. No ultrastructural changes were found to accompany these biochemical modifications. Glucocorticoids may act to influence the timing of lung biochemical development relative to phosphatidylcholine synthesis. (25 refs.)

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2314 **BERAN, ANTHONY V.; HUXTABLE, ROBERT F.; PROCTOR, KENNETH G.; & SPERLING, DONALD R.** Tissue oxygen available as a criterion for the effectiveness of continuous positive pressure breathing. *Pediatric Research*, 11(6):779-782, 1977.

In determining whether tissue oxygen available (O^2a) could be used to detect changes in perfusion during continuous positive pressure breathing (CPPB), it was found (in rabbits) that with excessive airway pressure, muscle hypoxia may exist during systemic hyperoxemia, and that a low compliance lung exerts a protective effect on O^2a. An excessive increase in airway pressure can also produce a decrease in cardiac output and local oxygen supply to the tissues in the presence of normal PaO^2 or even hyperoxemia, indicating that changes in cardiac output during CPPB are compliance dependent. Since O^2a is perfusion dependent, tissue oxygen available could provide a means of selecting optimal airway pressure during CPPB. (9 refs.)

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2315 **BONTA, BEDFORD W.; GAWRON, ELIZABETH R.; & *WARSHAW, JOSEPH B.** Neonatal red cell superoxide dismutase enzyme levels: possible role as a cellular defense mechanism against pulmonary oxygen toxicity. *Pediatric Research*, 11(6):754-757, 1977.

Premature babies who develop respiratory distress

syndrome (RDS) tend to have lower red cell superoxide dismutase (SOD) enzyme activity than those who do not develop this disorder, suggesting that oxidative injury to alveolar membranes may have a causal relationship to RDS itself. Infants treated for RDS showed an increase in red cell SOD activity which reached significance at 74 hours when compared to their original cord blood values. The neonate's ability to respond to hyperoxia by increasing intracellular activity of SOD, both in red cells and pulmonary parenchyma, may determine whether or not significant oxygen toxicity may develop. Red cell SOD levels decreased in 4 of 5 RDS infants who died, including 3 who developed bronchopulmonary dysplasia. In the surviving infants red cell SOD levels showed a significant increase by 48 hours, and none developed bronchopulmonary dysplasia. By increasing intracellular SOD activity in response to hyperoxic stress, toxic exposure to O^2- radicals may be prevented and integrity of the cell membrane preserved. (44 refs.)

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2316 **WHITT, GERALD G.; BUSTER, JOHN E.; KILLAM, ALLEN P.; & SCRAGG, WILLIAM H.** A comparison of two glucocorticoid regimens for acceleration of fetal lung maturation in premature labor. *American Journal of Obstetrics and Gynecology*, 124(5):479-482, 1976.

The fetal corticoid response from conventional dose (12mg) intramuscular betamethasone to large dose (1,000mg) intravenous cortisol administered to women in premature labor for acceleration of fetal lung maturity was compared. Fourteen women selected at random were treated in groups of 7 with either cortisol or betamethasone. Peripheral levels of unconjugated estriol were measured by specific radioimmunoassay prior to the corticoid dose and at 1, 4, 8, and 12 hours following the dose. The rate of corticoid delivery to the fetal hypothalamic-adrenal axis was estimated by the percent suppression of unconjugated estriol at each post-treatment interval. Least-squares regression lines fitted ($p<0.01$) for each regimen were compared for time saved (Δt) when cortisol was used. Mean Δt (1, 4, 8, and 12 hours) was 9.0±0.2 S.E.M. hours. The findings indicated that intravenous cortisol delivers a fetal corticoid effect which is significantly more rapid in onset and more profound in magnitude than does intramuscular betamethasone and that the cortisol regimen is probably better suited to the acceleration of fetal lung maturation in premature labor when time is short and rapid action is essential. (6 refs.)

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2317 **KAROTKIN, EDWARD H.; KIDO, MASUMITSU; REDDING, RALPH; CASHORE, WILLIAM J.; DOUGLAS, WILLIAM; STERN, LEO; & *OH, WILLIAM.** The inhibition of pulmonary maturation in the fetal rabbit by maternal treatment with phenobarbital. *American Journal of Obstetrics and Gynecology*, 124(5):529-531, 1976.

Phenobarbital was administered to 15 time-dated pregnant New Zealand rabbit does 7 to 10 days before the delivery of their fetuses at 27 to 30 days' gestation. Twenty pregnant rabbit does constituted the control group. No differences were found in body weight or wet or dry lung weights between control animals and phenobarbital-treated pups at similar gestational ages. The phospholipid content of the alveolar wash was lower in the treated group, but there was no difference in the lung tissue phospholipid content between groups. Treated pups had higher opening pressures and fewer lamellar bodies than the control animals. The data suggest that phenobarbital may have an inhibitory effect on the synthesis and release of surfactant by the fetal lung. On the basis of this study, it may be appropriate to re-examine the role of phenobarbital administration to pregnant women, with special reference to the possibility of inhibitory effects on fetal lung maturation. (7 refs.)

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2318 *KNIGHT, JOSEPH A.; **VALDES-DAPENA, M. A.; & AREY, JAMES B. Yellow pulmonary hyaline membranes and kernicterus. *Journal of Pediatrics*, 90(4):665-666, 1977. (Letters)

Kernicterus was observed in 3 infants with yellow pulmonary hyaline membranes. Maximum serum bilirubin levels in these infants were 13.9, 12.4, and 7.0mg/dl, with the lowest bilirubin level in the infant with the most severe kernicterus. All 3 infants had generalized edema secondary to prominent hypoproteinemia. Since kernicterus can be induced by the presence of free bilirubin, present by virtue of its having exceeded the capacity of albumin to bind it, kernicterus can develop at very low bilirubin levels if serum albumin is also low. Concentrations of serum albumin should be measured in any premature infant with respiratory distress syndrome who requires oxygen for several days, particularly infants whose endotracheal secretions are stained bright yellow.

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2319 KHARE, SANTOSH K. Neurohypophyseal dysfunction following perinatal asphyxia. *Journal of Pediatrics*, 90(4):628-629, 1977.

A newborn infant with severe perinatal asphyxia developed inappropriate secretion of antidiuretic hormone, followed by neurogenic diabetes insipidus. Serum sodium and urine osmolality values on the second day of life indicated that the infant had developed hyponatremia with hypertonic urine. On the tenth day of life, blood urea nitrogen and creatinine values indicated normal renal function. A positive response to a Pitressin stimulation test suggested a diagnosis of diabetes insipidus, which was successfully managed by increasing free water intake. (6 refs.)

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2320 OSATHANONDH, RAPIN; TULCHINSKY, DAN; KAMALI, HOMA; FENCL, MONSERRAT deM.; & TAEUSCH, H. WILLIAM, JR. Dexamethasone levels in treated pregnant women and newborn infants. *Journal of Pediatrics*, 90(4):617-620, 1977.

Maternal peripheral plasma, umbilical venous and arterial plasma, and amniotic fluid samples were collected from 5 healthy women undergoing cesarean section 8 to 11 hours after administration of 8mg oral dexamethasone to prevent respiratory distress syndrome in their premature infants. Dexamethasone and cortisol concentrations in these samples were measured by radioimmunoassay using a rabbit antiserum raised against dexamethasone-hemisuccinate-albumin, and levels were compared to those of control patients and their infants. Dexamethasone levels were 2.2μg/dl in maternal vein, 2.9μg/dl in umbilical vein, 2.6μg/dl in umbilical artery, and 2.5μg/dl in amniotic fluid in the experimental group. Although cortisol levels were markedly suppressed, the total relative glucocorticoid activity in blood of fetuses treated with dexamethasone far exceeded that of an untreated control group. (21 refs.)

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2321 *MELNIK, E. H.; **REPPERT, S. M.; MENT, L.; & TODRES, I. DAVID. Treatment of pneumopericardium in the neonate. *Journal of Pediatrics*, 91(3):510-511, 1977. (Letter)

In response to an article on the treatment of pneumopericardium in the newborn infant by Reppert, Ment, and Jones, Melnik notes that the high ventilatory pressures used may have contributed to the development of acute pneumothorax and pneumopericardium. Reppert and colleagues reply that the unusually high inspiratory pressures were necessary in this case. After multiple initial changes in respiratory settings, an inspiratory pressure of 55cm H^2O and an inspiratory:expiratory (I:E) ratio of 1:2 were found to be optimal to maintain adequate oxygenation in the infant. After stabilization of these settings, several attempts were made to lower peak inspiratory pressure and positive end

expiratory pressure and vary the I:E ratio, but each of these maneuvers resulted in rapid clinical deterioration and hypoxia. Every attempt should be made to decrease ventilatory pressures as clinical course dictates. (5 refs.)

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2322 **PAXSON, CHARLES L., JR.; STOERNER, JOAN W.; DENSON, SUSAN E.; ADCOCK, EUGENE W., III; & *MORRISS, FRANK H., JR.** Syndrome of inappropriate antidiuretic hormone secretion in neonates with pneumothorax or atelectaxis. *Journal of Pediatrics*, 91(3):459-463, 1977.

The syndrome of inappropriate antidiuretic hormone secretion (SIADH) was observed in 5 infants following pneumothorax or lobar atelectasis of the lung. All infants were being treated with positive airway pressure ventilation for pre-existing lung disease. Hyponatremia with concomitant serum hypo-osmolality, hyperosmal urine, and oliguria developed at a mean interval of 13.4 hours after acute atelectasis or pneumothorax. Renal and adrenal function were normal. The abnormalities resolved within 1.5 to 4 days, concomitant with fluid restriction therapy and removal of the triggering events. The high incidence of SIADH following pneumothorax or atelectasis warrants close attention to fluid and electrolyte balance in susceptible neonates to avoid dilutional hyponatremia as a result of water loading. (35 refs.)

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2323 **VOLPE, JOSEPH J.; & PASTERNAK, JOSEPH F.** Parasagittal cerebral injury in neonatal hypoxic-ischemic encephalopathy: clinical and neuroradiologic features. *Journal of Pediatrics*, 91(3):472-476, 1977.

Three infants presented with similar clinical features, including respiratory difficulties, seizures, and weakness of proximal limbs, with greater involvement of the upper extremities. All infants had meconium-stained amniotic fluid suggestive of intrauterine asphyxia. Technetium brain scans revealed abnormalities compatible with ischemic injury to the parasagittal regions of the cerebrum that were most marked in the posterior aspects but extended anteriorly into the region of the motor cortex. All 3 patients were successfully treated with phenobarbital. The characteristic pattern of weakness in proximal limbs and the corresponding neuroradiologic features observed in these infants may serve as useful diagnostic criteria in defining the pathologic process in neonatal hypoxic-ischemic encephalopathy. (9 refs.)

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2324 **BALLARD, PHILIP L.** Betamethasone and cortisol in prevention of respiratory distress syndrome. *American Journal of Obstetrics and Gynecology*, 129(4):475, 1977. (Letter)

The data presented in the comparative study of 2 glucocorticoid regimens for acceleration of fetal lung maturation in premature labor by Whitt and associates do not justify the conclusion that 1g intravenous cortisol is better suited for lung maturation and prevention of respiratory distress syndrome (RDS) than 12mg betamethasone. Although indirect measurements suggest that a large dose regimen of cortisol achieves high fetal corticoid levels, there is no evidence that levels higher than those produced by physiologic stress are more effective in inducing lung maturation. While the benefits of prenatal betamethasone therapy for prevention of RDS greatly outweigh the risks, the therapeutic effectiveness of high doses of cortisol has not been established. The high-dose cortisol regimen should not be considered routine prenatal therapy. (4 refs.)

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2325 **OBLADEN, MICHAEL; & GLUCK, LOUIS.** RDS and tracheal phospholipid composition in twins: independent of gestational age. *Journal of Pediatrics*, 90(5):799-802, 1977.

Serial phospholipid measurements were made in 8 pairs of preterm twins by analyzing tracheal and pharyngeal aspirates. In 4 pairs only 1 twin had respiratory distress syndrome (RDS); in the other 4 pairs both twins had RDS. No correlation of gestational age and lecithin/sphingomyelin (L/S) ratio in tracheal effluent was found on the first day of life, but the tracheal L/S ratio immediately after birth was predictive of RDS when below 2.0. As has been previously reported, tracheal or pharyngeal L/S ratio increased after birth in infants with and without RDS. In infants recovering from RDS, phosphatidylinositol increased, reaching a maximum on the fifth day of life. It seems probable that the maintenance of alveolar stability requires at least 1 surface active acidic phospholipid in addition to phosphatidylcholine. In the absence of phosphatidylglycerol, the regular finding in RDS, this function might be taken over by phosphatidylinositol, as both lipids are derived from the same precursor, CDP-diglyceride. The study suggests that surfactant composition can be independent of gestational age. (9 refs.)

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2326 **GLASGOW, J. F. T.; & THOMAS, P. S.** Rachitic respiratory distress in small preterm infants. *Archives of Disease in Childhood*, 52(4):268-273, 1977.

The occurrence of a syndrome of subacute respiratory distress, severe metabolic bone disease affecting the thoracic cage, and mild cholestasis in 4 small preterm infants during the first 3 months of life is described. The first chest radiographs in 2 infants showd features suggestive of the Mikity-Wilson syndrome, with which the disorder may be confused; on closer examination, each infant had evidence of craniotabes with an abnormally large, soft anterior fontanelle and some bony expansion at the wrists. Biochemical evidence of obstructive jaundice was also found in all cases. Cases 1, 2, and 4 were treated with parenteral 20μg and 50μ of parenteral vitamin D and oral vitamin D 125μg daily, respectively. In all 3 infants, respiratory function recovered as bone mineralization improved and rib fractures healed. Case 3 involves the smallest of the infants, who presented with severe apneic episodes, showed dilated loops of the lower small gut, and died at age 9 weeks of paralytic ileus. Necropsy revealed abonormalities in bones, lungs, and liver. The pathogenesis of the bone disorder in this syndrome is probably due to various nutritional and absorption abnormalities, and intrahepatic jaundice may be associated with impaired hydroxylation of native vitamin D in the liver. Supplementing the diet with 25-hydroxyvitamin D instead of native vitamin D might be the best prophylaxis. (25 refs.)

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2327 **JONES, R. W. A.; & PICKERING, D.** Persistent ductus arteriosus complicating the respiratory distress syndrome. *Archives of Disease in Childhood*, 52(4):274-281, 1977.

A retrospective study undertook to assess the incidence of persistent ductus arteriosus (PDA) complicating respiratory distress syndrome (RDS) at the John Radcliffe Hospital (Oxford, England), and to assess conservative management of this problem over a 3-year period. PDA was diagnosed in 45 (15 percent) of 299 babies with RDS. A high correlation was found between decreasing birthweight and the incidence of PDA complicating RDS. PDA occurred in 35 percent of the babies who received intermittent positive pressure ventilation (IPPV) for management of RDS. The mortality for RDS was 17 percent, and increased significantly to 31 percent when complicated by PDA. The incidence of PDA complicating RDS may be expected to increase with the increased survival of low birthweight infants with severe RDS. The mortality for infants in whom the appearance of a PDA murmur was associated with a return to IPPV, or in whom inability to wean from IPPV or CPAP required further assisted ventilation for prolonged periods, was high (47 percent). An inability to wean from assisted ventilation may define that group of infants with PDA complicating RDS who are most likely to benefit from early PDA ligation. The observation

that the ductus arteriosus may constrict or close after administration of prostaglandin inhibitors such as indomethacin suggests that medical rather than surgical closure of the PDA may become the treatment of choice. (30 refs.)

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2328 **ALLEN, L. P.; *REYNOLDS, E. O. R.; RIVERS, R. P. A.; LE SOUEF, P. N.; & WIMBERLEY, P. D.** Controlled trial of continuous positive airway pressure given by face mask for hyaline membrane disease. *Archives of Disease in Childhood*, 52(5):373-378, 1977.

To determine the correct stage of hyaline membrane disease during which to administer continuous positive airway pressure, 24 infants with clinical features of the disease were randomly entered into an early-intervention group or a late-intervention group if their arterial oxygen concentration (PaO_2) fell below 8k Pa (60 mm Hg) while they were breathing a fractional inspired oxygen concentration >0.60. CPAP was delivered via face mask. All 12 Ss of the early-intervention and 8 of the late-intervention group survived. PaO_2 increased when CPAP was started, and the infants treated early breathed high concentrations of oxygen for shorter periods than infants treated later in the course of the disease. The 7 ventilated infants in the late-intervention group required higher mean airway pressures to achieve satisfactory gas exchange than the 4 infants in the early-intervention group who required mechanical ventilation. A PaO_2<8 kPa while breathing an F_1O_2>0.60 is an adequate indication for giving CPAP in hyaline membrane disease. Early intervention allows infants who go on to require mechanical ventilation to be ventilated at lower pressures. (28 refs.)

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2329 **BRADY, R. E.; & WEINBERG, P. M.** Atrioventricular conduction disturbance during total parenteral nutrition. *Journal of Pediatrics*, 88(1):113-114, 1976.

A premature infant (weighing 1,300g) with a patent ductus arteriosus and hyaline membrane disease developed necrotizing enterocolitis on day 5. Despite successful treatment she had a recurrence on day 21 with gram-negative sepsis and acute renal tubular necrosis. She responded to treatment, but parenteral nutrition was begun on day 27 to maintain her weight. In 2 days electrocardiographic irregularities were noted, and on the third day after catheter placement a right bundle branch block was also noted. Six days after catheter placement she developed 2:1 atrioventricular block with a ventricular rate of 54. Radiographic studies indicated that the catheter was in the right atrium. Once the catheter was repositioned, immediate improvement in several parameters was noted, and the right bundle branch block resolved over the next 4 days.

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2330 **PALMER, SUSAN; MORGAN, THOMAS E.; PRUEITT, JOHN L.; MURPHY, JANET H.; & *HODSON, W. ALAN.** Lung development in the fetal primate macaca nemestrina. II. Pressure-volume and phospholipid changes. *Pediatric Research*, 11(10):1057-1063, 1977.

During the last 20 percent of gestation, total lung volume in the *Macaca nemestrina* increases approximately 100 percent, and lung phospholipids per gram dry weight of lung more than doubles. This phospholipid increase is primarily lecithin, of which a major part is surface active material (SAM) lecithin. As lung SAM increases the amniotic fluid lecithin to sphingomyelin ratio also increases. Low ratios of lecithin to protein in SAM are found before 135 days gestation. Subsequently the amount of lecithin increases, and the ratio increases 4-fold. The amount of lung required to reduce surface tension of 1 cm^2 to 12 dynes tended to decrease with advancing gestational age. Parallel studies of airway generation demonstrate a similarity to the human fetal lung. These studies indicate that the *Macaca nemestrina* fetal model may be useful in studying developmentally related pulmonary disorders of the human. (40 refs.)

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2331 **STORRS, C. NICHOLAS.** Cardiovascular effects of apnoea in preterm infants. *Archives of Disease in Childhood*, 52(7):534-540, 1977.

Cardiovascular responses to apnea and periodic breathing were studied in 11 preterm infants. A total of 47 apneic episodes in 9 infants were analyzed and found to be followed by bradycardia and peripheral vasoconstriction. In 2 infants with periodic breathing there was no significant difference in limb blood flow between the breathing and apneic phases. Because of the marked fall in heart rate during apnea, a fall in cardiac output occurs which is compensated for by the peripheral vasoconstriction. Systemic blood pressure is thus maintained. Under these circumstances cerebral blood flow would at least be maintained and might even be increased, as has been suggested in previous studies with animals. It is therefore concluded that cardiovascular responses to apnea may function to preserve blood supply to the brain and other vital organs.

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2332 **TANSWELL, A. KEITH; SHERWIN, ELIZABETH; & SMITH, BARRY T.** Single-step gastric aspirate shake test: bedside predictor of neonatal pulmonary morbidity. *Archives of Disease in Childhood*, 52(7):541-544, 1977.

Gastric aspirate shake test can play an important role in assessing lung maturity in preterm infants. Respiratory symptoms were seen in 25 of 30 preterm infants with negative or intermediate results, but in only 2 of 55 infants with a positive test result. No infant with a positive test developed respiratory distress syndrome (RDS), while 66 percent of preterm infants with negative tests developed RDS. There were no false negative results, and in 37 infants where both test results were available the gastric aspirate shake test was both more sensitive and selective than the amniotic fluid lecithin/sphingomyelin (L/S) ratio tests. In infants who developed RDS, serial shake test results paralleled the infants' clinical recovery. This technique is ideal for use in delivery units where neither amniocentesis nor L/S ratios are available, and where early infant transfer has to be considered. (13 refs).

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2333 **LAZZARIN, A.; CAPSONI, F.; MORONI, M.; PARDI, G.; & MARINI, A.** Leucocyte function after antenatal betamethasone given to prevent respiratory distress. *Lancet*, 2(8052/3):1354-1355, 1977. (Letter)

A study of the polymorphonuclear (PMN) function in 20 babies, 8 of whom had antenatal betamethasone, showed that betamethasone treatment might increase the risk of neonatal infection by reducing some PMN leukocyte function in the preterm baby. However, the benefit in terms of the reduction in neonatal deaths from respiratory distress syndrome (RDS) far outweighs the risk. This conclusion is supported by comparison of the results between 74 women in premature labor treated with betamethasone and 138 untreated women in premature labor. In the treated group, there were no deaths from RDS, compared to 24 in the untreated group. Also, stressed newborns, like those with RDS, already have a decreased bactericidal activity of leukocytes. However, the death rate from infection in the late neonatal period was slightly higher in the Ss treated with betamethasone than in the untreated group. The fact that after December 1975 there were no severe infections in the treated babies seems to indicate that the risk is only potential and that it becomes real only when there is an outbreak of hospital-acquired infection. (5 refs.)

Department of Medicine
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MEDICAL ASPECTS – Etiologic Groupings
Miscellany

2334 **FRIED, K.; & MUNDEL, G.** High incidence of spinal muscular atrophy type I (Werdnig-Hoffmann disease) in the Karaite community in Israel. *Clinical Genetics*, 12(4):250-251, 1977.

Spinal muscular atrophy (SMA) type I, or infantile Werdnig-Hoffmann disease, was found in 4 of 1,600 infants in the Egyptian Karaite community in Israel. Age at onset varied from 1 to 7 months, and age at death from 1.5 to 28 months. The infants were not related, and there were no affected siblings. The frequency of the autosomal recessive gene for SMA type I is estimated to be at least 0.05 in this community, with 1 heterozygous carrier for every 10 persons. Since the community has existed as a religious and reproductive isolate for more than 10 centuries, this high gene frequency is probably the result of genetic drift. (4 refs.)

University Department of Genetics
Asaf Harofe Hospital
Zerifin, Israel

2335 **TOOLEY, WILLIAM H.; & HOFFMAN, JULIEN I. E.** Caution about statistics of retrolental fibroplasia study. *Pediatrics*, 60(5):754-756, 1977.

The failure of the cooperative study on retrolental fibroplasia (RLF) 1969-1972 to answer the vital questions of what level and length of exposure to high PaO_2 would cause RLF has left many with the idea that there is no level of arterial PaO_2 that is dangerous to the newborn. Several features of the study design, such as patient selection and exclusion of fatalities, may account for the failure. The apparently large discrepancy between the number of determinations of PaO_2 done at the different institutions complicated statistical analysis. The linear discriminant analysis used does not test alinear functions or interactions among variables. Pediatricians should continue to regulate inspired oxygen on the basis of arterial blood samples and follow the advice of the Committee on the Fetus and Newborn of the American Academy of Pediatrics that infants requiring oxygen therapy generally do not need an arterial PaO_2 higher than 50 torr and do well with an arterial PaO_2 between 50 and 70 torr. (5 refs.)

Cardiovascular Research Institute
University of California
San Francisco, California

2336 **DESENCHANTES, LES CHERMIGNO-WARDS.** Oxygen and retrolental fibroplasia: the questions persist. *Pediatrics*, 60(5):753-754, 1977.

Questions evolving from the cooperative study of retrolental fibroplasia (RLF) conducted in 1953 and 1954 and from the cooperative study conducted from 1969-1972 remain unanswered. Ethical constraints prevented the testing of vital questions concerning oxygen concentrations and RLF by additional randomized trials after the initial 12-year epidemic of childhood blindness. Arterial blood Po_2 measurements became popular in the 1960's, causing questions on the fractional concentration of oxygen in inspired air (FIO_2) to become obsolete, although unresolved. Methodological defects of the most recent study are discussed. Physicians' optimism that the advent of continuous monitoring of the oxygen state of the newborn with new devices will allow better oxygen administration control may be justified on technical grounds, but the question of the optimal Po_2 endpoint of oxygen administration and control is still unanswered. A well-designed, randomized clinical trial that limits risk and meets ethical criteria in needed. (8 refs.)

2337 ***KINSEY, V. EVERETT; ARNOLD, HARVEY J.; KALINA, ROBERT E.; STERN, LEO; STAHLMAN, MILDRED; ODELL, GERARD; DRISCOLL, JOHN M.; ELLIOTT, JAMES H.; PAYNE, JOHN; & PATZ, ARNALL.** PaO_2 levels and retrolental fibroplasia: a report of the cooperative study. *Pediatrics*, 60(5):655-668, 1977.

The relation of PaO_2 and retrolental fibroplasia (RLF) was examined in 719 premature infants; 589 of these infants were tested for blood gas, and 66 of them were diagnosed as having RLF. Discriminant analysis was used to provide a quantitative means of measuring multiple variables simultaneously. A high correlation was found between RLF and low birthweight. Data obtained from infants in all birthweight groups showed the concentration of oxygen to be significantly related to RLF but at not as high a level as time in oxygen. PaO_2 and other variables involving blood chemical values were found to be unrelated to the occurrence of RLF. Lack of uniformity of factors associated with treatment given both normal and RLF infants, especially time in oxygen, may be the cause of not determining a definitive relationship between RLF and PaO_2. (12 refs.)

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2338 **CAMPBELL, R. H. A.; MARSHALL, W. C.; & CHESSELLS, JUDITH M.** Neurological complications of childhood leukaemia. *Archives of Disease in Childhood*, 52(11):850-858, 1977.

A review of a group of 438 children with leukemia or lymphoma who had neurological complications not directly attributable to leukemic infiltration showed that 61 had one or more complications due chiefly to bleeding, infection, and drug toxicity. Death resulted from intracranial hemorrhage in 1 percent of children with lymphoblastic leukemia and 7 percent of children with myeloblastic leukemia. Measles and chicken pox were the most serious infective complications; one child remains severely retarded after presumed measles encephalitis, one child with chicken pox died, and a second remains disabled. Neurotoxicity was most common with methotrexate, although vincristine, cytosine arabinoside, 1-asparaginase, and phenothiazines were also implicated. Methotrexate toxicity was more prevalent and more serious in children who had had previous central nervous system leukemia. Viral infections and methotrexate appear to pose the greatest neurological hazards to children with leukemia. (34 refs.)

Department of Hematology
Hospital for Sick Children
London, England

2339 **JURGENSEN, ORTRUN; & TAUBERT, H.-D.** Cervical incompetence and premature delivery after bromocriptine therapy for infertility. *Lancet*, 2(8030):203-204, 1977. (Letter)

The pregnancies of 6 out of 10 women who had conceived after treatment with bromocriptine (5mg/day for an average of 5 months) for hyperprolactinemia were complicated by cervical incompetence and premature delivery. Four had pituitary adenomas or microadenomas, 7 had never been pregnant before. One woman had an early abortion, while 6 of the remaining 9 showed signs of impending cervical incompetence (to which a purse-string suture was applied). In 3 of these women premature rupture of the membranes and premature labor ensued, resulting in premature delivery in the 29th week (1 case) and the 31st week (2 cases). Only 2 of those infants survived, both of whom are small and one of whom shows signs of motor retardation. Two others delivered at term, and one is in her third trimester. Of the 3 women with normal cervical findings, 1 ruptured prematurely at 37 weeks, and the other 2 delivered normally despite complications of hypertension and excessive weight gain. Although complicated pregnancy is common after successful treatment of infertility, the frequency was especially high in this group, perhaps indicating the need for further studies in cases of hyperprolactinemia. (1 ref.)

Center of Obstetrics and Gynecology
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2340 **POLEDNAK, ANTHONY P.** Post-mortem neuropathology in a mentally retarded population. *Lancet*, 1(8009):492-493, 1977. (Letter)

Gross neuropathological findings in 132 "unclassified" cases of MR were compared by level of MR. In almost all cases, at least one gross abnormality or noteworthy condition was reported. In general, the frequency of most conditions decreased from the idiot (PMR) level to the higher grades of MR. The grosser defects were relatively more frequent in the lower grades, suggesting that SMR is often associated with events occurring before birth. Noteworthy exceptions to this pattern were the high frequency of hydrocephalus (compensatory),

edema, herniations, and macrogyria and other anomalies of shape and surface, in the more severely MR grades. Among the mildly MR the most frequent findings were edema, herniations, hydrocephalus (compensatory), macrogyria, and vascular disorders, with perhaps nearly all of the gross findings being attributable to edema. Hypoxia caused the cytotoxic edema found in 1 mildly MR case. The probable cause of the vasogenic edema could not be determined. Epilepsy was mentioned in the clinical records of 5 of the 10 mildly MR with edema, but in only 2 of the 6 with herniations. (8 refs.)

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DEVELOPMENTAL ASPECTS — Physical

2341 GRASSY, RICHARD G., JR.; HUBBARD, CONNIE; GRAVEN, STANLEY N.; & ZACHMAN, RICHARD D. The growth and development of low birth weight infants receiving intensive neonatal care: preliminary observations on 28 such infants. *Clinical Pediatrics*, 15(6):549-553, 1976.

Twenty-eight survivors (29 percent) out of a group of 98 newborn premature infants who weighed between 680 and 1,000g at birth and were cared for at a Regional Neonatal Intensive Care Unit were followed (with one exception) for periods of up to 4 years, 3 months. Only eight (30 percent) had neurologic abnormalities, including spastic hemiparesis, retrolental fibroplasia, hydrocephalus, motor retardation, and some delay in language skill development. The other survivors had normal physical examinations and developmental progress, as judged by a variety of screening examinations. The average caloric intake during the first week was 61cal/kg/day, although more than half of the neonates never reached that level until day 4. Six of eight with low caloric intake in the first week (< 50kg/day) were neurologically handicapped. On the other hand, two patients with 73 and 115cal/kg/day averages the first week had moderate language delay. Despite long hospitalizations and some severe illnesses, almost all of the low birthweight infants later had normal weight, height, and head circumference growth patterns. (29 refs.)

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Madison, Wisconsin 53715

2342 HAYES, R. W.; & GORDON, A. G. Auditory abnormalities in autistic children. *Lancet*, 2(8041):767, 1977. (Letter)

Hearing tests administered by means of the electroacoustic impedence meter to 16 autistic children 8-15 years of age with no records of any abnormality of pure tone hearing revealed defects of pure tone hearing in 3, abnormalities of the stapedius rex threshold in 12, and one case of liquid in the middle ear. These findings are inconsistent with the prevalent view that autistic children have no peripheral auditory defects. Most of the defects found probably would not cause problems of speech comprehension in adults or in children who had previously been able to talk, but if such disorders had been present in these children from a very early age, the acquisition of speech could have been seriously affected. (8 refs.)

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2343 Nutrition in critical periods of development. *Lancet*, 2(8031):229-230, 1977. (Editorial)

The questions whether and how nutrition affects brain growth are still largely undetermined. Although studies have been done on children concerning the effect of malnutrition on intelligence, very few of them have been adequately controlled for non-nutritional influences. In cases where the mother is malnourished during pregnancy the child is malnourished before and often after birth, so that if brain impairment does develop the etiology is difficult to determine, especially since malnourishment is often coupled with lack of mental stimulation. Furthermore, if it is assumed that at least some light-for-date babies are due to nutritional problems, a decreased level of intelligence might be expected, but studies show no such decrease. However, babies with subnormal head circumferences were found to develop more slowly. Exactly how malnutrition may fit into this picture is unknown. Infants who received intermittent ventilation and/or parenteral nutrition, which may interfere with normal nutritional pathways, were found to have lower IQ's than matched controls, although other factors may be involved. Routine measurement of developmental status in all children could perhaps help determine some of the causes. (17 refs.)

2344 **FUJIMURA, MASANORI; & SERYU, JUN-ICHI.** Velocity of head growth during the perinatal period. *Archives of Disease in Childhood*, 52(2):105-112, 1977.

The relationship between gestational age at birth and the patterns of growth velocity of the head circumference in 222 normal term and 94 small for dates infants during the first 5 months of life was investigated. A steady slowing in the rate of growth of head circumferences from birth was observed in both groups. Preterm appropriate weight for dates (AFD) infants of less than 36 weeks gestation had an increasing rate of growth followed by a slowing in velocity, with maximum velocity occurring between 30 and 40 days after birth. Results indicated that the shorter the postconceptional age at birth, the later maximum velocity occurred. Preterm AFD infants between 30 and 33 gestation weeks who received a high caloric feed showed a growth velocity curve similar to that of infants of 34-37 weeks gestation. Estimation of intrauterine head growth from cross-sectional age showed a slowing of head growth velocity from 31 weeks gestation *in utero* and a marked increase in velocity after birth in term infants. Because of the delay of maximum velocity of head growth in the preterm infant, its head circumference at a given postconceptional age is greater than that of the term infant during the first 5 postnatal months of life. (27 refs.)

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Higashi Yodogawa-ku
Osaka, Japan

2345 **FUJIMURA, MASONORI.** Factors which influence the timing of maximum growth rate of the head in low birthweight infants. *Archives of Disease in Childhood*, 52(2):113-117, 1977.

The effects of gestational age at birth, postnatal nutrition, and respiratory illness on the timing of maximum head growth velocity were investigated in 63 infants aged less than 34 weeks of gestation and in 7 infants born between 34 and 40 weeks of gestation who had severe respiratory illnesses. Findings showed that the longer the gestation, the earlier maximum head growth velocity occurred. Severe respiratory illness in infants of similar gestational ages was associated with a delay in the timing of maximum head growth velocity, possibly due to hypoxia. The timing of maximum head growth velocity was not significantly related to differences in caloric intake during the first week of life. Maximum velocity of head growth was achieved earlier than that of body weight. The significance of the delay of timing of the maximum head growth velocity for future development is unknown. (14 refs.)

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Osaki, Japan

2346 **SANDERS, T.A.B.; ELLIS, F. R.; & DICKERSON, J.W.T.** Polyunsaturated fatty acids and the brain. *Lancet*, 1(8014):751-752, 1977. (Letter)

To test the hypothesis that brain development might be impaired if dietary long-chain polyunsaturated fatty acids (LCP) are insufficient, man's ability to produce LCP from short-chain polyunsaturated fatty acids (SCP) was investigated by comparing vegans, whose diet should contain no LCP but plenty of short-chain polyunsaturated fatty acids (SCP), with omnivores, whose diets should contain both SCP and LCP. The fatty-acid composition of the plasma-choline-phosphoglycerides was estimated as an indicator of liver LCP synthesis in 12 vegans and 12 omnivore controls matched for chronological age and sex. In 18 vegans and 18 matched omnivore controls the fatty-acid composition of the total erythrocyte lipids was estimated as an indicator of tissue LCP status. The proportion of LCP derived from linoleic acid was greater in the vegans than in the omnivores, while the reverse was true for the proportion of LCP derived from linoleic acid. The ratio of decosapentenoic acid to decosahexenoic acid in both these fractions was greater in the vegans. No evidence of ill-health was found. There was no evidence that a source of LCP is necessary in the human diet for normal brain development. (12 refs.)

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2347 **LAPP, NANCY S.** Music activities to aid perceptual-motor development in the perceptually underdeveloped. *Mental Retardation*, 16(1):59-60, 1978.

Children with learning difficulties may have had inadequate experiences in sensorimotor development, and there is reason to believe that the music therapist can be an important resource for these children. Movement cannot be separated from motor development and is also an important part of music learning. Rhythm is an important part of movement and a vital part of music, too. Listening is necessary for learning from and adjusting to the environment and is necessary as well for meaningful involvement in music. First learnings are motor, and they play a major role in intellectual development. Motor (movement) and sensory (visual, auditory, tactile, and kinesthetic) involvement are an important part of music therapy activities. Music can be used to aid in the development of gross motor skills, body image and awareness, laterality, eye-hand coordination, and auditory-motor coordination.

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2348 **JOHNSON, LEON; & LONDEREE, BEN.** Motor fitness testing manual for the moderately mentally retarded. Washington, D.C.: American Alliance for Health, Physical Education and Recreation, 1976, 72 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $3.50, plus postage. Order No. ED132808.

Modified norms and testing procedures are presented for use in administering the Special Fitness Test Award System and the Special Fitness Test to moderately MR children. Stimulating MR youngsters to participate actively in physical education, as well as giving them feelings of personal accomplishment, are 2 major purposes in adapting the test and award system to special children's standards. Revised norms for moderately MR are provided for such test items as flexed arm hang, sit-ups, standing long jump, and the 50-year dash. Additional appropriate physical tests for MR populations have also been added. The testing program and the award system are described, and instructions for administering the tests are provided. Examples of the recording forms are also included.

2349 **RAY, A. BARTOW; SHOTICK, ANDREW L.; & PEACOCK, L. J.** Activity levels of mentally retarded individuals: do they reflect the circadian rhythm? *Australian Journal of Mental Retardation*, 4(5):18-21, 1977.

An ultrasonic activity recording device was utilized in a study of the activity levels of 120 MR children (69 EMRs and 51 TMRs, chronological age 87 to 201 months). Activity level as a function of time of day (A.M. versus P.M.), day of week, sex, and educational placement (EMR versus TMR) was examined. The findings indicated that circadian biorhythms are an important contributing factor in the regulation of general activity levels in MRs. The results suggested that behavioral problems typically associated with activity level will be more pronounced in the afternoon than during the morning hours. General activity levels changed daily throughout the week, possibly due in part to the periodic imposition of a structured environment. A significant difference was found between males' and females' general activity levels, as reported frequently in the literature. TMRs and EMRs exhibited differences in morning and afternoon activity levels across days, with the morning and afternoon activity levels being consistently higher for the TMRs. The findings lend further support to the existence of a negative correlation between IQ and general activity level in MRs. (18 refs.)

Department of Psychology
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Athens, Georgia

DEVELOPMENTAL ASPECTS — Mental

2350 **SINGH, NIRBHAY NAND.** Experience effects in the acceleration of number conservation in mentally retarded children. *Australian Journal of Mental Retardation*, 4(5):22-28, 1977.

The differential effects of poor experience on 10 moderately and 10 mildly MR children were studied in a conservation of number experiment. All Ss were given pretests and posttests of conservation of number. The moderately MR children were given pretraining on hierarchically structured arithmetic tasks, and the mildly MR children were instructed on traditional arithmetic tasks. Both groups then were taught the concepts of "same," "more," and "less" by a learning set method. A significant interaction was observed between type of training and gains in conservation ability. The moderately MR children exhibited substantial gains in their ability to conserve on Piagetian number conservation tasks, an indication that experience on arithmetic tasks facilitated mastery of the number concept. In contrast, exposure to a typical arithmetic program was not effective in advancing the conceptual development of the mildly MR children. The present investigation showed unequivocally for the first time that the ability of moderately MR children to conserve number can be accelerated by appropriate teaching methods. (29 refs.)

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2351 **PODHAJSKI, BLANCHE**; et al. An interprofessional problem-solving approach for specific learning disabilities: clinical, medical, educational. *Resources in Education (ERIC)*, 12(7):73, 1977, 42 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED135126.

A model program for students with learning disabilities at the University of Vermont is described and illustrated with charts and tables. The program features an interprofessional team of educational, clinical, and medical specialists. The 5 steps in the Problem Oriented System for Educational Services (POSE) discussed include: identification; tentative definition of the problem; diagnosis; classroom educational plan; and evaluation of the remediation plan. The need for differential diagnostic testing is emphasized in an analysis of medical aspects of the diagnosis of learning disabilities, including soft neurological signs. Remedial strategies are discussed in terms of 6 considerations, including the importance of flexible programming for students with learning disabilities. Nine charts, including diagrams of the POSE approach, and 6 tables, including a list of selected assessment measures, are appended.

2352 **MITCHELL, CAROL.** A psycholinguistic analysis of oral reading errors of children with learning disabilities. *Resources in Education (ERIC)*, 12(7):73, 1977. 28 p. Available from ERIC Document Reproduction Service, Box 190, Arlington 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED135129.

Psycholinguistic techniques were applied to the oral reading errors of 10 children with learning disabilities (9-11 years old) to describe the type of errors, the use of graphic, syntactic, and semantic information, and the implementation of correction strategies. Individual oral reading sessions were tape recorded, and errors were classified according to substitution, omission, insertion, reversal, and complex combination. Results showed that Ss used graphic, syntactic, and semantic information for reading in a manner consistent with previous research findings on children with no reading difficulties. Analysis of oral reading errors may serve as a diagnostic tool for students with learning disabilities.

2353 **KASS, WALTER**; et al. Follow-up note on a case of learning disability thirty years later. *Resources in Education (ERIC)*,

12(7):73, 1977. 12 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135130.

A case study of a learning disabled male examined periodically from age 15 to 20 and followed to his present middle age is presented. The diagnosis of the young man's organic brain damage led to a redirection of treatment for what had previously been identified as schizophrenia.

2354 **WEISS, HELEN GINANDES; & WEISS, MARTIN S.** Survival alternatives for the LD adolescent. *Resources in Education (ERIC)*, 12(7):73, 1977. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135131.

Described are 16 general classroom recommendations for helping the learning disabled secondary school student. Suggestions include encouraging the student to learn through the auditory channel, grading the student on effort or signs of progress rather than on performance compared to the group, keeping written and reading homework to a minimum, providing outlets for physical activity for students with restless and distractible behavior, and assigning one counselor to follow up on all learning disabled students and their problems.

2355 **MCGOVERN, JILL E.** Auditory perception in learning disabled and nonlearning disabled culturally different pupils. *Resources in Education (ERIC)*, 12(7):73, 1977. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135132.

The auditory perception skills of 32 pupils with learning disabilities and 32 culturally different elementary pupils without learning disabilities were compared by means of 3 subtests of the Illinois Test of Psycholinguistic Abilities and the Wepman Auditory Discrimination Test. Consistent differences between the 2 groups were seen on all 4 measures of auditory perception (auditory discrimination, auditory memory, auditory closure, and sound blending). Both groups evidenced deficiencies in auditory perception skills, with auditory memory skills being the least deficient and sound blending the most deficient. One of the educational implications of the study discussed is the need for directing primary attention to the treatment of learning disabilities in the culturally different learning disabled child.

2356 **VAN NAGEL, CLINT; et al.** A competency based teacher training program in learning disabilities. *Resources in Education (ERIC)*, 12(7):72, 1977. 24 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135124.

The competency based teacher training program in learning disabilities at the University of North Florida is described. The program's 13 generic competencies are enumerated, including statement of objectives in observable terms, identification of pupil interest and motivation, modality assessment, developmental sequence of lessons, use of reinforcement, and instruction for transfer and generalization. The developmental sequence of 10 required courses and student evaluation measures during 3 practicum phases are also discussed, along with ways of assessing information on program and faculty effectiveness.

2357 Upper Iowa University. A replication handbook for learning disabilities and the institutionalized adult. (A 309 project for staff development of adult basic education personnel in Iowa.) Bury, Susan S., *Resources in Education (ERIC)*, 12(7):11, 1977. 72 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $3.50, plus postage. Order No. ED134709.

A staff development project was implemented by Upper Iowa University to increase teacher competence in the education of adult students with learning disabilities. Teachers of adult education classes throughout the State were participants. The need for a staff development project for teachers with students at Level I was revealed through teachers' requests to the area coordinators for materials and techniques for working with students at this level. Methods,

materials, and teaching techniques were provided by the project in all areas of the curriculum, with emphasis on reading. Characteristics of the learning disabled student were examined, and commercially available tests to help diagnose Level I skill needs were demonstrated. Handouts, overhead projections, slides and cassette recordings, books, and participant involvement were also used to disseminate information.

2358 **THOMAS, ELIZABETH K.; & WALMSLEY, SEAN A.** Some evidence of continuing linguistic acquisitions in learning disabled adolescents. *Resources in Education (ERIC)*, 12(7):74, 1977. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135144.

To examine the linguistic development of 42 learning disabled students 10-16 years old, responses were elicited to 5 linguistic structures, including the distinction between "ask" and "tell," pronominal restriction, and the minimum distance principle. Data were analyzed in terms of 3 groups based on Verbal and Performance differentials on the Wechsler Intelligence Scale for Children, and of the Ss' performance as a whole to determine whether the constructions were acquired in the order previously suggested by C. Chomsky. Ss demonstrated late (approximately 3-4 years) and idiosyncratic acquisition of the structures, although most Ss acquired them in the order posited by Chomsky for normal younger children.

2359 **FAIRBANKS, DWIGHT W.** Helping Eliminate Early Learning Disabilities (HEELD). An adopter's guide. Central Point, Oregon: Central Point School District 6, 1976. 61 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $4.50, plus postage. Order No. ED135172.

A guide is provided for school districts interested in adopting the Helping Eliminate Early Learning Disabilities (HEELD) Program, an early childhood learning program developed and operated in Oregon, and guidelines for implementing the 4 phases of the program are provided. Phases covered include: (1) program planning and teacher training (training of staff and coordination with other teachers); (2) selecting students and involving parents (locating the children and parent groups); (3) classroom instruction (classroom strategy, testing, and record-keeping); and (4) summer "maintenance" and first grade (final testing and follow-up through second and third grades). Appended are a selected bibliography and lists of suggested instructional and testing materials, sample report forms, and a sample learning packet for home use during the summer.

2360 **KEEFE, BARBARA.** A comparison of laterality between normal and dyslexic readers. *Resources in Education (ERIC)*, 12(7):77, 1977. 15 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135168.

The weak, strong, and equal lateralization theories of dyslexia were examined with 38 right-handed boys who were either dyslexic or normal readers and were matched for age and IQ (mean age both groups 10.6, mean IQ normal readers 106, mean IQ dyslexic readers 105). The dichotic listening technique was used to measure cerebral lateralization for linguistic material (digits). No difference was found in mean lateralization score between normal and dyslexic groups; however, the distribution of the lateralization scores of the normal Ss appeared unimodal, whereas that of the dyslexic Ss appeared bimodal. Both the weak and the strong lateralization theories of dyslexia are supported by results of the study.

2361 Indiana University. A comparison of the effect of self evaluation lessons and increased content of the prompting module on teacher interactions with handicapped readers during oral reading. Final Report 11.3. Brady, Mary Ella. Bloomington, Indiana: Center for Innovation in Teaching the Handicapped, 1976. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $3.50, plus postage. Order No. ED135160.

The effects of teacher instructions during oral reading on pupil reading strategies were studied with 12 teachers of EMR students in intermediate and junior high self-contained classrooms and

remedial reading students receiving extra reading instructions. A self-instructional module on prompting skills was given to the teachers for responding to pupil miscues during oral reading. Findings indicate that the teachers rated the training as very helpful although they were not able to increase the success rate of their prompts, that many were unable to discriminate between different types of prompts, and that there were no differences between variations of the prompting module used.

2362 HARTLAGE, LAWRENCE C.; & HARTLAGE, PATRICIA L. Relationship between neurological, behavioral, and academic variables. *Journal of Clinical Child Psychology*, 6(1):52, 1977.

Forty-five boys and girls, mean age 9 years, with I.Q.'s in the 90's were randomly selected for testing from regular primary grade classes. Nineteen neurological measurements were chosen from diagnostic procedures commonly used in the evaluation of "soft signs" in children. The highly significant relationships found on 114 correlations between neurological, academic, and behavioral variables suggest that neurological impairment is highly specific in its relationships with given classroom phenomena. Signs most significantly related to intelligence and academic performance included combined hand, foot, and eye dominance and tongue dysdiadochokinesia; eye dominance and more complex measures of right-left orientation seemed least related to behavioral variables.

2363 RODABAUGH, BARBARA J. et al. *A Study of Special Programs for Children with Specific Learning Disabilities. Appendix to the Final Report. Case Studies*. Palo Alto, California: American Institutes for Research in the Behavioral Sciences 1976. 203 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $11.37, plus postage. Order No. ED133951.

Appendixes to a report examining 17 Child Service Demonstration Centers (CSDC) established by the Bureau of Education for the Handicapped to develop and disseminate model projects for children with specific learning disabilities (LD) are presented. A discussion of approaches and emphases used by the 17 CSDCs to develop and stimulate educational services for LD students focuses on the contexts in which the CSDCs operate, the principal objectives and activities of each center, and the characteristic ways in which students were served. Insight is provided into some particularly effective strategies at the sites, as well as obstacles encountered in working toward their own objectives.

2364 Nova University. *A Model Program To Meet the Needs of the Learning Disabled Child*. Fotos, Joseph P. Nova introductory Practicum, 1976. 105 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $6.01, plus postage. Order No. ED132815.

A model program to assist the learning disabled (LD) child in a small school district at some distance from an intermediate service unit is described. The program's 4 basic components—screening, services, evaluation, and refinements—were designed to enable the LD child more readily to attain grade level in basic skills; to help him to arrive at a higher opinion of himself, his family, and his school; and to alleviate his physical coordination problems. Following psychological screening and educational prescriptions, students were assigned to mixed classrooms for general class work and sent to resource rooms where their disabilities were given specialized treatment. Parents and staff surveyed at the program's conclusion noted the students' improved cognitive, affective, and psychomotor performance. It was recommended that the model, including 12 specific suggestions for improving future program development, be incorporated as a regular school district program for the LD. Appendixes include a list of meetings, visits, and conferences; a sample case report; tables on program costs; information on administrative policy regarding psychological referrals; sample referral forms; and annual summaries on several students.

2365 ROSS, ALAN O. *Learning Disability: the Unrealized Potential*. New York, New York: McGraw-Hill, 1977, 202 p. $10.75.

The various manifestations of learning disabilities are described, and speculations concerning the causes of learning disabilities are reviewed.

Guidelines on how to effect improvements are offered, with case studies drawn from personal experience as concrete examples.

CONTENTS: A Learning-Disabled Child; How Did It All Start?; What Is Learning?; Is Something Wrong With Their Brains?; What Can One Tell from Tests?; What Have We Learned from Research?; What Can Be Done for the Learning-Disabled Child?; What about the Child Who Refuses to Go to School?; The Child Whose Behavior Is a Source of Trouble; Summing Up.

2366 **ROSS, ALAN O.** A learning-disabled child. In: Ross, A. O. *Learning Disability: the Unrealized Potential*. New York, New York: McGraw-Hill, 1977, Chapter 1, p. 1-14.

In every classroom there is at least one child who is obviously and demonstrably bright but who fails to keep up with his or her classmates in one or more subject matters. These children differ from one another in many ways, yet they all have one thing in common: they show a discrepancy between the school performance expected of them on the basis of their potential and the performance which they actually produce. These children, commonly called learning-disabled, are a source of consternation, irritation, and despair to teachers and parents alike. The learning-disabled child is not MR, physically impaired, emotionally disturbed, or culturally disadvantaged, and no one has ever demonstrated that learning-disabled children are brain damaged, although many have claimed that this is the reason for their problem. Their problem is an educational one, and the responsibility for helping them rests ultimately with educators, for a learning disability is not so much a lack in the child's ability to learn as it is a lack in the educator's ability to identify and teach children with special educational needs. (1 ref.)

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2367 **ROSS, ALAN O.** How did it all start: In: Ross, A. O. *Learning Disability: the Unrealized Potential*. New York, New York: McGraw-Hill, 1977, Chapter 2, p. 15-28.

Many of the pioneers in the area of learning disabilities brought with them an orientation which depended heavily on the professional experiences they had before they turned their attention to this area. Kurt Goldstein studied the aftereffects of brain injuries sustained by German soldiers during World War I, and was led to conclude that brain damage results in difficulty in differentiating between a figure and its background and an inability to deal with abstract concepts. Strauss and Werner, having been forced to leave Hitler's Germany, found themselves working together in the research department of the Wayne County Training School, an institution for MRs in Michigan. It was here that they pursued the idea that brain damage was one important cause of MR. Subsequently, William Cruickshank played a central role in demonstrating that cerebral palsied children, whose brains are indeed damaged, display the kind of performance deficits observed by Strauss in presumably brain-damaged MRs. Newell Kephart's contribution is focused on perceptual-motor functions. Helmer Myklebust coined the term psychoneurological learning disability, a condition which he attributes to a dysfunction in the brain. (6 refs.)

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2368 **ROSS, ALAN O.** What is learning? In: Ross, A. O. *Learning Disability: the Unrealized Potential*. New York, New York: McGraw-Hill, 1977, Chapter 3, p. 29-43.

Since no one really knows what learning is, it is not surprising that nobody really knows what a learning disability is. Learning is not only a covert process, it is also a process of change over time. In fact, it is no more than a description. When one speaks of a learning disability, one is implying that a child is not able to learn. We know, however, that children who are presumed to have learning disabilities are able to learn when specialized teaching methods are introduced. Thus, the issue is not that the child cannot learn but that he or she has difficulty learning under circumstances where learning ordinarily would be expected to take place. The usual way to analyze the child's performance is on a standard test of intelligence. This is done on the assumption that the child's demonstrated intelligence level bears some rela-

tionship to his or her learning potential. However, an intelligence test is no more than a measure of performance on tasks where prior learning materially affects how well or poorly one does. A somewhat more sophisticated approach to the use of intelligence tests in the assessment of intellectual potential is the analysis of consistencies and inconsistencies within test performance. (2 refs.)

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2369 ROSS, ALAN O. Is something wrong with their brains? In: Ross, A. O. *Learning Disability: the Unrealized Potential*. New York, New York: McGraw-Hill, 1977, Chapter 4, p. 44-60.

The assumption that learning-disabled children have something wrong with their brains contributes nothing of value as far as the child is concerned, since it does not lead to the use of remedial methods which would not be employed if the assumption had not been made. Nevertheless, notions about the brain continue to enter discussions of learning-disabled children. Primarily because nobody has ever been able to demonstrate that these children have brain damage, the terminology has shifted to the term minimal brain dysfunction syndrome. Minimal brain dysfunction is neither a syndrome nor an explanation of learning disability, however. Many discussions of learning-disabled children use the expression "hyperactivity" as if it were synonymous with learning disability or as if the two conditions invariably were found together. Neither is the case. If the focus is on hyperactivity as the cause of learning disability, intervention is often aimed at reducing the hyperactivity on the untenable assumption that learning will take care of itself once the child settles down. It is here that the prescription of medications finds its use and abuse. (7 refs.)

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2370 ROSS, ALAN O. What have we learned from research? In: Ross A. O. *Learning Disability: the Unrealized Potential*. New York, New York: McGraw-Hill, 1977, Chapter 6, p. 94-123.

In view of the trials and tribulations connected with research endeavors and the fact that research on learning disabilities began no more than 10 years ago, it is not surprising that definitive answers have not yet been found. Before one can hope to do meaningful research, the problem must be recognized and its area circumscribed. Even now not everyone agrees that the problem of learning disabilities exists, and there is little agreement as to which children should be included. Assumptions about language problems, visual development, neurologic impairment, or memory disorder have all resulted in studies which were aimed roughly at solving the puzzle presented by learning disabilities, but none has provided an answer. In contrast, the research on selective attention indicates that learning disabilities are due to problems in this area and that the frequently reported distractibility, hyperactivity, and impulsiveness of learning-disabled children are the results and not the cause of their problem. Until teaching can be matched to children's ability in the realm of selective attention, the best educators can do is to work with learning-disabled children with ideas about selective attention clearly in mind. (12 refs.)

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2371 ROSS, ALVIN O. What can be done for the learning-disabled child? In: Ross, A. O. *Learning Disability: the Unrealized Potential*. New York, New York: McGraw-Hill, 1977, Chapter 7, p. 124-144.

Effective methods of helping children with learning disabilities come from the two dominant psychological approaches to the study of learning; the cognitive approach and the behavioral approach. While cognitive and behavioral psychologists often are placed in an adversary position, the 2 approaches are not so much competitive as they are complementary. Not surprisingly, both approaches have led to usable methods which can be applied to help the learning-disabled learn. A group of investigators at Indiana University Medical School in Bloomington decided to explore whether children could be helped to be less impulsive if they were taught to

"stop, look, and listen" before answering a question or responding to a task. This study succeeded in improving the maze test performance of impulsive children. Another study indicated that the problem of these children was not impulsiveness but an underdeveloped ability to use selective attention. Many of the studies conducted by behavioral psychologists have had their focus on the motor behavior (hyperactivity) of learning-disabled children, with emphasis placed on the strengthening of desirable behaviors by positive reinforcement. (8 refs.)

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2372 **ROSS, ALAN O.** Summing up. In: Ross, A. O. *Learning Disability: the Unrealized Potential*. New York, New York: McGraw Hill, 1977, Chapter 10, p. 186-191.

Labeling and intelligence testing can yield deceptive results and prove less than helpful for children with learning disability. Labeling almost always leads to important consequences which may or may not benefit the child who has been given the label. Labels obscure important differences and make it more difficult to understand the problems of the individual child. Tests of intelligence are no more than tests of current performance and share with other tests of achievement a susceptibility to influences of experience, motivation, anxiety, and physical condition. Hyperactivity and learning disability are not synonymous, and simply helping a child who is both learning-disabled and hyperactive to sit still will not do anything for that child's learning. Learning-disabled children may be those for whom there is a mismatch between their development and the way in which they are being taught. If one adopts the position that they have not yet developed optimal selective attention, there emerge a number of ways of teaching them. One is to increase the distinctiveness of the differentiating aspects of stimuli; another is to let them experience things like letters through more than one sense modality and in more than one version.

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2373 **MCGINTY, JOHN.** *Project Echo: Evaluation of the Implementation and Replication of a Child Service Demonstration Project for Secondary Students with Learning Disabilities*. Austin, Texas: Southwest Educational Development Laboratory, 1976. 111 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $6.01, plus postage. Order No. ED132764.

An evaluation of Project Echo, which is a repetition of an earlier supplementary instructional program for secondary level learning disabled (LD) students, notes the positive effects of intervention on the LD students and recommends that development of other teaching modules in additional subject areas be seriously weighed. An introductory section briefly describes the 3 primary components of the project (the teaching curriculum, the teacher training materials, and the classroom management handbook), the 5 replication sites in Texas, and the evaluation design. Individual reports on evaluation findings, instrumentation, design configuration and implementation, and the data analysis model are provided for each of 10 elements--academic achievement, student attendance, student dropouts, parent involvement, community information dissemination, teacher training, Project Echo dissemination, activity audit, instructional content mastery, and teacher perception. Appendixes on technical aspects of the project include a report on a screening process connected with Project Echo, examples of data collection forms, an explanation of the methodology used to research student achievement, and student attendance and dropouts.

2374 *Informal Diagnosis and Prescriptive Programming: A Workshop*. Des Moines, Iowa: Midwest Regional Resource Center, 1976. 363 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $19.41, plus postage. Order No. ED132751.

Ten modules are described that illustrate training methods for teaching essential skills to children with learning disabilities. Each module contains 3 sections labeled "Facilitator Notes," "Activity Notes," and "Activity Sheets," as well as various

worksheets, recording sheets, activities finished by other participants, demonstrations, and articles. The 10 modules are: (1) Defining the problem and assessing what will satisfy the student's needs; (2) Task analysis; (3) Error pattern analysis; (4) Systematic inquiry; (5) Determining each student's capabilities and establishing priorities: (6) Behavioral goals; (7) Learning methods; (8) Task analysis of materials; (9) Matching learner and material characteristics; and (10) Planning materials for use with learning disabled students. Appendixes include notes on the module tests and the global test administered to participants, the tests and answer keys, additional evaluation methods, and bibliographies of pertinent source materials.

2375 U.S. National Institute of Mental Health. Detection and prevention of learning disorders. Yahraes, Herbert; & Prestwich, Sherry. Washington, D.C.: Superintendent of Documents, Government Printing Office 20402, 1976. 35 p. (70 cents. Stock No. 017-024-00524-0. There is a minimum charge of $1.00 for each mail order.)

An overview is presented of various approaches to the detection and prevention of learning disabilities. Learning disorders and their nature are defined and discussed in the introduction. Approaches to learning disorders in clinical research, such as cerebral dominance, the role of the brain's hemispheres, signs of neurological deficits, results of intervention, and scanning tests, are covered in one section. Another section dwells on the experimental approach, including reviews of tests, their predictive value, and some results of intervention. A final section identifies the fundamental causes of learning disorders, including hereditary and environmental factors, as well as complications stemming from pregnancy and birth.

2376 **SHAPS, PHILIP P.** *Language and Reading Disability among Disadvantaged Youth: Overview; and Remedial Philosophy and Programs. Resources in Education*, (ERIC), 12(5):53, 1977. 400 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $20.75, plus postage. Order No. ED132559.

Language and reading disability problems of disadvantaged students at both elementary and secondary school levels are examined, and evidence that such disabilities are a continually recurring problem is reviewed. Individual sections describe remedial techniques and existing programs; examine federal, state, and local government approaches to handling learning and reading disabilities; devise new programs based upon the results of the best previous efforts; and make suggestions for the English curriculum at all levels.

2377 **LEISMAN, GERALD.** *Basic Visual Processes and Learning Disability*. Springfield, Illinois: Charles C Thomas, Publisher, 1976. 407 p. Available from Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois 62717. $27.50.

Reports related to clinical or research problems in vision and learning disabilities are presented by members of various disciplines. Basic processes, specific disorders, diagnosis of visually-based problems in learning, and treatment approaches are the 4 broad subheadings under which the reports are organized. Discussions of visual physiology, neuropsychology, nutrition, attention, memory, evoked potentials, and genetic factors are included.

2378 Dyslexia. A selective bibliography. Exceptional Child Bibliography Series No. 652. Reston, Virginia: Council for Exceptional Children, 1976. 23 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED129016.

A bibliography on dyslexia contains approximately 95 abstracts and indexing information for documents or journal articles chosen from the computer files of the Council for Exceptional Children's Information Services and the Education Resources Information Center (ERIC), and published from 1966 to 1975. Each abstract includes bibliographic data, descriptors indicating the subject matter covered, and a summary of the document's contents. Instructions are included for using the bibliography, and a list of journals from which articles were abstracted is provided. An order form is included for ordering paper or microfiche copies of the documents from ERIC Document Reproduction Service.

2379 **FAGAN, W. T.** Reading and the mentally handicapped. In: Das, J. P.; & Baine, D., eds. *Mental Retardation for Special Educators*. Springfield, Illinois: Charles C Thomas, 1978, Chapter 11, p. 227-246.

Reading is a series of complex processes, the effective functionings of which may be interfered with by such factors as visual and auditory deficits and perceptual handicaps. The mentally handicapped child is not just intellectually slower. His traits are as variable as those found in any child in a regular classroom. Therefore, presenting material at a slower rate for these children is not the answer. Materials and methods must be chosen in light of each child's present level of achievement, the processes required for various reading tasks, and his or her strengths and weaknesses. First, realistic reading objectives which the child will be able to achieve and which he or she will require for effective social and vocational participation should be established. Materials must be selected which are most suited to instruction of the child in the achievement of these goals. Finally, the teacher must analyze the cognitive and linguistic processes involved in a particular task and select effective teaching procedures. (11 refs.)

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2380 **LEONG, C. K.** Language behavior of moderately mentally retarded children. In: Das, J. P.; & Baine, D., eds. *Mental Retardation for Special Educators*. Springfield, Illinois: Charles C Thomas, 1978, Chapter 6, p. 114-134.

It is clearly possible to help the moderately MR child to develop usable, functional language. The commonly held pessimistic view that low intelligence in MRs causes their language disabilities has given way to the more positive, realistic view that language is a functional attribute which may change as circumstances vary. It has been shown that moderately MR children can comprehend declarative sentences better than negative sentences, that they experience difficulties with passive sentences, and that the syntactical patterns of their sentences are much less complex. Lois Bloom suggests that treatment programs for language disorders of MRs should place the teaching of syntax before morphological inflection of noun, verb, and adjectival forms. One useful language training procedure for MRs is the operant analysis of language which systematically programs various positive consequences for correct language responses required at each step of a sequential program. A strategy to help the MR in his or her language development is to "operate" on the MR through the related processes of imitation, expansion, and modeling. (69 refs.)

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2381 **TYMCHUK, A. J.** Intelligence: its nature and measurement. In: Das, J. P.; & Baine, D., eds. *Mental Retardation for Special Educators*. Springfield, Illinois: Charles C Thomas, 1978, Chapter 5, p. 98-113.

Intelligence is a hypothetical concept used to represent the ability to acquire and to use knowledge. Various tests of intelligence measure a variety of abilities. It has been assumed that these tests measure only cognition, but increasing evidence has demonstrated that noncognitive or environmental variables affect test performance. Efforts have been made to encourage alternative functional testing procedures as a means of improving on the prediction of achievement, and the use of IQ as the sole criterion for the diagnosis of MR has been criticized. Currently, evidence of poor social adaptation is required in addition to a low IQ in order to establish a diagnosis of MR. The predominant view at present appears to be that both heredity and environment play a part in determining the intelligence of an individual. The extent to which each does so, however, is an unresolved issue. Stimulus deprivation such as that found in institutions may be detrimental to intellectual development and physiological integrity. One animal study has shown how genetic endowment and environment interact in intellectual development. (32 refs.)

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2382 LAWSON, M. Memory and rehearsal. In: Das, J. P.; & Baine, D., eds. *Mental Retardation for Special Educators*. Springfield, Illinois: Charles C Thomas, 1978, Chapter 4, p. 82-97.

Memory problems apparent in MRs can be viewed as problems of efficiency in using the information-processing system. A review of studies of rehearsal in MRs indicates that training in rehearsal strategies can improve memory performance. One implication of the success of training is that MRs have at least 2 distinct processing problems which contribute to poor memory performance. The first is the lack of a wide repertoire of rehearsal strategies to be used in the operation of the individual's information control processor. Training can alleviate this problem to some extent. The second, and more complex, problem is one of planning and decision-making, manifested in a failure to utilize rehearsal strategies which are appropriate for a given task. Future refinements of rehearsal training and training in planning the use of specific rehearsal strategies will result in improved efficiency of MRs' memory processing and lead to a revised view of "retarded" behavior. (14 refs.)

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2383 BOWER, A. C. Learning. In: Das, J. P.; & Baine, D., eds. *Mental Retardation for Special Educators*. Springfield, Illinois: Charles C Thomas, 1978, Chapter 3, p. 48-81.

The MR typically performs adequately in simple motor and conditioning tasks but has difficulty with more complex tasks, especially those involving abstraction and efforts with verbal stimuli. A basic component of attention is the orienting response, which serves to make the organism more sensitive to incoming stimuli. Learning probably only occurs when an organism is motivated to act. Reinforcement is one of the most vital factors affecting learning. The emergence of language in the young child signifies the arrival of a vastly accelerated rate of learning. It seems that learning may be slower in MR or young children because of difficulties in using words as mediators. Various attempts have been made in the last decade to point to specific deficits in the learning of the MR. Working from the ideas of Pavlov and classical conditioning, Luria (1961) suggested that the MR is weakly controlled by the second signal system, that is, language with its properties of abstraction and conceptualization. In contrast, Zigler (1969) proposed calling upon a class of noncognitive variables, namely motivational ones, in order to account for the learning problems of MRs. (75 refs.)

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2384 DAS, J. P. Attention. In: Das, J. P.; & Baine, D., eds. *Mental Retardation for Special Educators*. Springfield, Illinois: Charles C Thomas, 1978, Chapter 2, p. 31-47.

In MR research, attention has been a key construct. Two American psychologists, Zeaman and Ellis, have done several experiments which make it quite clear that MRs suffer from an attention deficit. Attention is the basis of further cognitive activities; if the MR child is deficient in receiving information from the outside world, he cannot learn, think, and make decisions. The primary impairment of the learning of MRs is presumed to occur at the input stage. Luria has found that the MR child cannot maintain an orienting response (OR), and that habituation of the OR is much faster in the MR child. None of several studies of the OR to words and of the use of instructions to establish and reverse signal meaning so that ORs are selectively evoked or inhibited suggests that the MR suffers from a general deficit of attention as indicated by the OR, however. The experiments do suggest several methods of optimizing attention in the learning environment: the classroom for MRs should have as few distractors as possible, verbal mediations should be employed for learning, and task duration should be proportionate to the level of difficulty of stimulus material. (13 refs.)

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2385 KIERNAN, CHRIS. Alternatives to speech: a review of research on manual and other forms of communication with the mentally handicapped and other non-communicating populations. *British Journal of Mental Subnormality*, 23, Pt. 1(44):6-28, 1977.

The available evidence on alternatives to speech as means of communication suggests that non-communicating mentally handicapped, aphasic, and autistic students could learn to communicate through manual and other representational systems. How this can be done most effectively, whether the use of alternatives hastens or slows speech acquisition, who can benefit, which system is preferable, and what effects the learning of alternative modes of communication has on cognitive development are questions which cannot be answered from the literature, however. In particular, the possibility that the learning of alternative systems leads to acquisition of understanding and use of speech is poorly supported. Moreover, virtually nothing is known about the necessary prerequisites for learning any of the alternative systems. Quite possibly, though, autistic, aphasic, and mentally handicapped students could gain more, in terms of both communication and general cognitive development, from a visuospatial mode than from a verbal mode. The area of alternatives to speech clearly offers exciting possibilities for a breakthrough which could have far-reaching effects. (94 refs.)

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2386 FISHER, MARY ANN. Visual recognition in mentally retarded adolescents: cue value and instruction effects. *American Journal of Mental Deficiency*, 82(4):359-364, 1978.

An experiment was designed to test whether differential subjective frequency of positive and negative cues is built up during discrimination trials with MRs and to assess the effect on recognition memory of instructions which may influence the encoding of the stimuli in MRs. Twelve Ss with a mental age (MA) between 5 and 8 years and 12 Ss with a MA between 8 and 11 years were selected at random from an MR population and assigned to low-MA and high-MA groups, respectively. The instrument employed was the manual Wisconsin General Test Apparatus modified for discrimination learning in children. Recognition scores for positive and negative discriminative stimuli tested after a single trial through a discrimination problem list indicated that the frequency theory shown by Ekstrand, Wallace, and Underwood (1966) to account for the verbal discrimination learning of nonMR adults may also hold for the visual discrimination learning of MRs. In addition, MRs correctly recognized the stimuli more often after a simple inspection trial than after a standard discrimination learning trial, an indication that they encoded the stimuli differently depending upon the instructional set. The encoding difference was mediated by systematic restrictive-looking patterns. (11 refs.)

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2387 MOSLEY, JAMES L. Retinal locus and the identification of tachistoscopically presented letters by retarded and nonretarded individuals. *American Journal of Mental Deficiency*, 82(4):380-385, 1978.

Two-letter stimulus displays, differing in the magnitude of the horizontal spatial separation between the letters, were presented tachistoscopically to 10 MRs and 10 nonMRs matched for sex and chronological age. On the assumption that the spatial separations were linearly related to retinal location, an estimate of the stimulus-recognition threshold for each group was derived with the use of the method of constant stimuli. The data indicated a similar stimulus-recognition threshold and a similar decrement in the accuracy of responding as the stimulus separations increased. The findings are consistent with the lateral inhibitory influence of stimuli simultaneously present on the fovea and spaced less than one degree apart. They also suggest that acuity within the fovea decreases as the locus of the stimulus is moved from the foveal center. Apparently, research demonstrating iconic-memory differences between MRs and nonMRs is indexing a postretinal stage of cognitive processing. Moreover, studies of iconic memory using MRs must take into account not only the influence of retinal location but also the fact that MRs may be less

willing to respond as the task becomes more difficult. (14 refs.)

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2388 **KIRBY, N. H.; NETTELBECK, T.; & BULLOCK, J.** Vigilance performance of mildly mentally retarded adults. *American Journal of Mental Deficiency*, 82(4):394-397, 1978.

Nine female and 7 male MR adults and 8 female and 8 male university students matched for chronological age were compared on an auditory and a visual vigilance task. The auditory apparatus included a pair of earphones through which a tape-recorded series of white noise pulses of .5-second duration was played. A nonsignal pulse was presented at an intensity of 30dB, while a signal pulse was 33dB. For the visual task, a circular patch of red light 3cm in diameter appeared for a .5-second duration about 2m directly in front of the S. A nonsignal light was presented at an intensity of 4.8ftl, and a signal light at 10ftl. For both tasks, the S responded by pressing a button whenever he thought a signal had occurred. Contrary to the findings reported by Semmel (1965) for a visual task, no difference was found in the rate of decline of performance between the 2 groups in either of the 2 tasks, although the above-average group demonstrated superior overall performance. The results offered no support for the hypothesis that MRs suffer from a more rapid decay in arousal under conditions of reduced sensory variation or for the suggestion that MRs might be more inattentive in the visual vigilance situation employed. (3 refs.)

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2389 **CALLNER, D. A.; DUSTMAN, R. E.; MADSEN, J. A.; SCHENKENBERG, T.; & BECK, E. C.** Life span changes in the averaged evoked responses of Down's syndrome and nonretarded persons. *American Journal of Mental Deficiency*, 82(4):398-405, 1978.

Visual, auditory, and somatosensory evoked responses were recorded from 6 age groups of 66 Down's syndrome Ss and 66 nonMRs matched for sex and chronological age (CA). On the basis of observable signs of development and aging, Down's syndrome and nonMR Ss were assigned to CA groups ranging from 8 years to 51 years. The basic model for data analysis involved the use of 3-, 2-, and 1-factor analyses of variance. One-factor analyses of variance and *a posteriori* pairwise mean comparisons were performed following the finding of significant main effects. Regardless of stimulus modality, the amplitude of late wave components was dramatically larger for Down's syndrome than for nonMR Ss. Although visual evoked response late wave amplitude recorded from occipital and central areas in nonMRs tended to decrease with advancing age, the amplitude of the majority of visual evoked response components in the responses of Down's syndrome Ss remained stable or actually increased with advancing age. The results of the auditory and somatosensory evoked response data also indicated that age-related trends existed among nonMRs but were much less obvious among Down's syndrome Ss. (31 refs.)

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2390 **FRANZINI, LOUIS R.; LITROWNIK, ALAN J.; & MAGY, MARTIN A.** Immediate and delayed reward preferences of TMR adolescents. *American Journal of Mental Deficiency*, 82(4):406-409, 1978.

Thirty-five adolescent TMR students (IQ=37) were presented with a list of 32 reward options, consisting of primary (food) and secondary (cash equivalent) rewards which were immediately available or were delayed one day at a ratio of 1:2. The greatest number of delay choices occurred when the decision was between immediate/secondary and delayed/primary rewards. All Ss were classified as delayers or nondelayers, and their choices for each of the four options were examined. Delayers, constituting 34.3 percent of the TMR sample, made the fewest delay choices when presented with immediate/primary vs. delayed/secondary options. Nondelayers made the most delay choices when presented with an immediate/secondary or delayed/primary choice. The data indicate that TMR adolescents as a group, when given the present choices, prefer smaller, immediate, and primary rewards, but the

findings do not necessarily imply that these individuals are unable to delay. Similarly, their preference for primary rewards does not mean that secondary rewards cannot or should not be utilized in training programs. (11 refs.)

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2391 **CONROY, ROBERT L.** Facilitation of serial recall in retarded children and adolescents: verbal and kinesthetic strategies. *American Journal of Mental Deficiency*, 82(4):410-413, 1978.

The nature of the modality-specific effects of rehearsal training for serial recall was explored with 96 MRs divided into a younger group (mean CA 122 months) and an older group (mean CA 163 months). MR children and adolescents were trained in either verbal or kinesthetic "cumulative rehearsal-fast finish" strategies for picture recall. The results showed that both strategies facilitated recall on training tasks and on a transfer-recall test. The findings demonstrated clearly that MRs' serial recall was facilitated in a manner which is typical of nonMR adolescents and adults. No significant age effect or Age X Rehearsal Condition was found, an indication that the magnitude of rehearsal-training effects was as large for the adolescents as for the younger children. The data provide support for a general cross-modality recoding explanation of rehearsal effects and suggest that MRs are capable of a mediating function in sensorimotor memory as well as in their verbal-auditory memory system for serial recall of pictures. (10 refs.)

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2392 **WILSON, BARBARA C.; & WILSON, JAMES J.** Language-disordered children: a neuropsychologic view. In: Feingold, B. A.; & Banks, C. L., eds. *Developmental Disabilities of Early Childhood*. Springfield, Illinois: Charles C Thomas, 1978, Chapter 13, p. 148-171.

The literature explosion in the area of developmental language disorders is evidence of increased interest and concern, but it continues to highlight how little is known. Much of what is known about the etiologies of these disorders is inferential at best. The relatively large numbers of children who present with deficits in language development and who are products of high risk pregnancies or births or who had stormy neonatal courses suggest that organic factors probably play a role. Hearing impairment and MR are 2 major causes of delayed acquisition of speech and language; autistic children are another group that demonstrates significant delay in acquisition of communication skills. Still another group exists whose deficits can be conceptualized as referable to differences in their neurochemistry, to temporal variations at the synapses, to differences in neural circuits. Frequently a differential diagnosis is difficult to make, yet some guidelines exist. Profile analysis has proved useful as a means of providing modality-specific information and also serves as an excellent heuristic device in terms of generating hypotheses regarding brain-behavior relationships. (40 refs.)

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2393 **HAVILAND, RICHARD T.** A stimulus to language development: the institutional environment. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 24, p. 229-235.

An institutional atmosphere can be created which will provide an effective stimulus environment in which language can be acquired. First, there is a need for the development of efficient delivery systems for visual, auditory, and tactile-kinesthetic stimuli. The very real problems of personnel shortages, safety and durability of materials to be utilized, and expense of supplies and equipment to be implemented can and should be overcome. Second, an in-service education program must be instituted for institution personnel. Proper attitudes must be developed in direct service personnel, and they must be provided with the proper guidelines for developing language models appropriate to residents' needs. In-service education is perhaps the most commonly understood and available vehicle for passing on information in

most institutions. Third, an appeal must be made for improved conditions in institutions for MRs, whether public or private. Specifically, the spirit already contained in the American Association on Mental Deficiency's *Standards for Residential Facilities for the Mentally Retarded* must be implemented. (13 refs.)

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2394 **BRICKER, WILLIAM A.; & BRICKER, DIANE D.** Development of receptive vocabulary in severely retarded children. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 25, p. 236-250.

Forty institutionalized SMR children divided into 2 experimental groups (random and sequential) and 2 control groups (Hawthorne and do-nothing) were Ss in an investigation of the comparative effects of structured and unstructured language training. All screening, pretesting, and posttesting for all groups, and training for the experimental groups, was done with a modified Wisconsin General Test Apparatus. The stimuli used for testing and training were 25 small toy replicas of common objects. The object of screening was to teach the Ss how to play the game. Each of the 25 objects used in the pretest was presented 5 times as the named stimulus and 5 times as the distracting member of a stimulus pair. Training varied from a minimum of 5 sessions to a maximum of 25. The results of the study indicated that a number of low-functioning children showed increases in their receptive vocabularies from the first to the second half of the pretest. Longer periods of individual training maintained, but did not seem to improve, the level of performance. However, lack of individual training resulted in a rapid deceleration in correct responding among the untrained learners. (10 refs.)

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2395 **ROWE, DOROTHY.** The effect of a more stimulating environment on the behavior of a group of severely subnormal adults. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 26, p. 251-263.

A ward of 21 severely SMR males (chronological age 17 to 38 years) was assessed before and after the development of a more enriched environment for these patients. Sensorimotor stages, circular reactions, and object concepts were assessed. Ss were also assessed on the Reynell Language Scales. The patients were divided into 3 groups of 7 each, and a program was drawn up whereby one of the groups would be off the ward on some interesting activity while the additional space on the ward was used by the remaining 2 groups. The gymnast, physiotherapist, art therapist, and nursing staff all led groups in specific activities. Moreover, the nurses tried to get the patients to be more self-reliant, paid special attention to particular individual habits, and provided more personal clothing. A television and record player were made available to the patients, and some changes were made in the furnishings to create a more home-like atmosphere. At the end of 7 months, 14 of the patients had reached Stage 6 of Object Permanence, which, in Piaget's view, is the stage at which language as a system of symbols begins to develop. (7 refs.)

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2396 **INGALLS, ROBERT P.** Cognitive development in the retarded: Piaget's theory. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook*. New York, New York: John Wiley & Sons, 1978, Chapter 10, p. 239-260.

The theorizing of the Swiss philosopher Jean Piaget has dominated the study of cognitive development in children, and a lot of research in the United States has attempted to apply his theory to the behavior of MR children. Piaget postulated 4 different stages of cognitive development through which all children progress: the sensorimotor period (which normally spans the first 2 years), the preoperational period (from 2 to about 7 years old), the concrete operational period (normally extending from ages 7 to 11), and formal operations, the last stage. Various research projects have demonstrated that this theory describes MR development nearly as well as it does normal development. PMR children seem to be functioning basically similarly to children in the

sensorimotor period, and MR children appear to acquire the different kinds of conservation in the same order that normal children do. In general, mildly MR children will achieve the concrete operational level but not the formal operational level, while moderately MR children will achieve the preoperational level but not the concrete operational level. (31 refs.)

2397 **INGALLS, ROBERT P.** Language and mental retardation. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook*. New York, New York: John Wiley & Sons, 1978, Chapter 9, p. 219-236.

Language and intelligence are so intimately related that some people have practically defined MR in terms of a language deficit. It is widely assumed that language is necessary for most higher-order thinking, and the vast majority of the items on most intelligence tests involves either a verbal stimulus, a verbal response, or both. A deficit in language skills is perhaps the single most important characteristic distinguishing an MR from a nonMR. As a result, the subject of language in MRs has received a lot of attention both from a theoretical point of view and from the practical standpoint of trying to improve verbal skills in MR children. Research has shown that MR children acquire language skills in essentially the same manner as normal children do but at a slower rate. Consequently, when MR children are compared to normal children of similar chronological age, the MRs show a distinct deficit. Since language acquisition ceases sometime around puberty, many moderately MR individuals and most SMRs and PMRs may not develop complete language skills. On the average, MR children are delayed in language development even when they are compared to nonMRs matched for mental age. (35 refs.)

2398 **INGALLS, ROBERT P.** Learning and memory in the mentally retarded. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook*. New York, New York: John Wiley & Sons, 1978, Chapter 8, p. 189-217.

Experimental research in learning and memory with MRs can be divided into research comparing MR to nonMR Ss and research which simply uses MR Ss. The former type of research usually is oriented toward testing theories of MR, among them the developmental theory and various defect theories. A number of basic learning paradigms have been studied quite intensively by experimental psychologists who are interested in MRs. The simplest of these is classical conditioning, which involves pairing a neutral stimulus such as a bell or tone with a stimulus which normally elicits a response. Operant conditioning involves following a specific response with a reinforcement and, thus, increasing the frequency or probability of the response. Paired associate learning involves teaching the S to respond with a certain word when a stimulus word is presented. Several studies have shown that MRs have impairments in short-term memory. However, research from various sources indicates that MR Ss fail to rehearse and that this hurts their performance. Similarly, they are less likely to use other strategies to facilitate learning and memory. (56 refs.)

2399 **RONDAL, J. A.** Maternal speech in normal and Down's syndrome children. In: Mittler, P., ed. *Research to Practice in Mental Retardation*, Volume 2: Education and Training (Proceedings of the Fourth Congress of the International Association for the Scientific Study of Mental Deficiency). Baltimore, Maryland: University Park Press, 1977, p. 239-243.

The maternal linguistic environments of normal and MR children matched for level of language development as assessed by mean length of utterance (MLU) were compared. Ss were 21 Down's syndrome children and their natural mothers and 21 normal children and their natural mothers, including 7 normal and 7 Down's syndrome children matched at each of 3 MLU levels (1.00 to 3.00). The verbal interaction between mother and child was tape recorded at home in a free-play situation. Maternal speech was analyzed for 20 measures related to its output-numerical, lexical, syntactical, semantic-structural, semantic-pragmatic, and language-teaching aspects. Eight measures of children's speech were computed as a means of testing the validity of the MLU-matching performed on the children as a basis for the study. The only measure of children's speech found to reveal a significant difference between normal and Down's children was

type-token ratio, which favored Down's children. None of the comparisons of mothers' speech to normal and Down's children led to differences which were significant or close to significance for any of the children's 3 language levels, and there was no significant *type of children* X *children's language level* effect on any of these comparisons. (12 refs.)

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2400 CHESS, STELLA. The plasticity of human development: alternative pathways. *Journal of the American Academy of Child Psychiatry*, 17(1):80-91, 1978.

Timing and sequencing of acquisition of developmental capabilities are important issues in view of the growing interest in early developmental evaluations and interventions. The major thrust of early evaluation and intervention programs is predicated upon 2 assumptions: first, that developmental norms can be established for any age period and that deviations from these norms represent pathology, and second, that with some active intervention program, such pathological courses can, in many cases, be prevented or at least significantly ameliorated. Examination of the validity of these assumptions is intertwined with an examination of the validity of the widespread assumption of a continuity of development, of the extensive variability of normal individual development, of the prognostic significance of suboptimal test performance, and of alternative pathways of mental development demonstrated by physically handicapped children, including those with defects due to congenital rubella. There are many roads to the same developmental points, and recording the pathways found by different types of handicapped youngsters may do much to expand concepts of predictability and extend possibilities of effective intervention. (15 refs.)

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2401 U.S. Health, Education, and Welfare Department. *Detection and Prevention of Learning Disorders.* Yahraes, Herbert; & Prestwich, Sherry. (DHEW Publication No. [ADM] 76-337.) Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1976, 31 p.

Research with children with learning disorders and with children at risk for learning disorders is described, and investigations concerning the basic causes of these disorders are discussed. (38 refs.)

CONTENTS: Introduction; A Clinical Approach to Detection and Prevention; An Experimental Approach to Prediction and Prevention; Basic Causes of Learning Disability.

2402 YAHRAES, HERBERT; & PRESTWICH, SHERRY. Introduction. In: U.S. Health, Education, and Welfare Department. *Detection and Prevention of Learning Disorders.* (DHEW Publication No. [ADM] 76-337.) Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1976, p. 1-6.

Learning disorders, by whatever label, are a significant cause of emotional distress and behavior disorders among children and adolescents and are an important source of family dissension. No single pattern of psychopathology is characteristic, however, and bad outcomes are not preordained. Dyslexia (literally, "difficulty with words," but commonly used to mean "reading impairment") is usually accompanied by some other deficiency, which is apparently a variant of the same basic trouble. Dyslexic children may be deficient in writing and spelling, speech, or arithmetic and may also be hyperactive and poorly coordinated. Boys are at greater risk than girls for learning disorders, as they are for hyperactivity, behavioral disturbances, autism, and schizophrenia. Whatever the underlying trouble, there is some tendency to agree that learning disability can generally be ascribed to maturational lag, a concept advanced as early as the 1920's. Two teams of investigators have recently developed test batteries for the early detection of learning disability.

2403 **YAHRAES, HERBERT; & PRESTWICH, SHERRY.** A clinical approach to detection and prevention. In: U.S. Health, Education, and Welfare Department. *Detection and Prevention of Learning Disorders.* (DHEW Publication No. [ADM] 76-337.) Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1976, p. 6-16.

Dr. Archie A. Silver heads one of the research teams which recently have developed test batteries for the early detection of learning disability. Silver and Hagin hypothesize that a major difficulty for dyslexia is lack of clear-cut cerebral dominance, particularly for language, and they have used the so-called arm extension test to determine cerebral dominance. Among the first group of children they studied, 41 youngsters with both emotional problems and learning disabilities, they identified a subgroup with neurological signs. To bolster the usual psychotherapeutic treatment, they enrolled the youngsters in a remedial reading program. Subsequently, they developed a preventive training program for vulnerable first-grade children in the Kips Bay area of Manhattan (New York) which resulted in markedly improved mental health and success in learning by grade 5. Silver and Hagin have also helped institute a similar program in other schools in New York and North Carolina. The researchers also have developed and are continuing to improve a scanning battery to be used by teachers towards the end of the kindergarten year to predict reading failure and to determine required intervention procedures.

2404 **YAHRAES, HERBERT; & PRESTWICH, SHERRY.** An experimental approach to prediction and prevention. In: U.S. Health, Education, and Welfare Department. *Detection and Prevention of Learning Disorders.* (DHEW Publication No. [ADM] 76-337.) Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1976, p. 16-21.

Dr. Paul Satz heads a reasearch team which has developed a test battery that foretells with considerable accuracy at the very start of kindergarten those children who will fail in reading. Thus, intervention can begin in kindergarten. The team's first sample comprised all the white boys (about 500) in the 1970 kindergarten classes of Alachua County, Florida. The following year Satz and one of his students, Dr. Sarah Sparrow, tested the 200 white boys in each of the kindergarten classes in five of the county's largest schools. The investigators first used 20 measures to assess a wide variety of cognitive and developmental skills. This battery correctly designated 100 percent of the children who were found, almost 2 years later, to have severe reading disability and correctly predicted 71 percent of the boys found to have a mild disability. Of particular importance was the fact that the tests continued to show greater accuracy for those children destined to extremes of the reading distribution in later years. Subsequent crossvalidation studies confirmed these findings. The team's work with predictive tests has been in preparation for the development of an intervention program starting in kindergarten.

2405 **YAHRAES, HERBERT; & PRESTWICH, SHERRY.** Basic causes of learning disability. In: U.S. Health, Education, and Welfare Department. *Detection and Prevention of Learning Disorders.* (DHEW Publication No. [ADM] 76-337.) Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1976, p. 21-26.

The underlying reason why a child of normal intelligence cannot learn to read and write well, or has extreme difficulty doing so, when taught by the usual educational methods remains a mystery. There is good evidence to support the theory of a lag in the development of the neurological structures that make possible the skills needed for reading, but it is not known why the lag should exist if the brain has not been damaged. Beginning with two studies in 1905, numerous investigations have shown that learning disorders run in families and apparently can be inherited. Investigators repeatedly have found an increased incidence of complications of pregnancy and birth. However, the supposition that these complications were often a causative factor has now been questioned by several investigators. One researcher concludes that a causal connection has yet to be demonstrated between a constitutional variable and any personality or intellectual developmental outcome. Silver and Hagin found learning disabilities most prevalent among underprivileged children, who may lack perceptual and intellectual stimulation as well as proper nourishment.

2406 **EISER, CHRISTINE; & LANSDOWN, RICHARD.** Retrospective study of intellectual development in children treated for acute lymphoblastic leukaemia. *Archives of Disease in Childhood*, 52(7):525-529, 1977.

A study of 15 children previously treated for acute lymphoblastic leukemia (ALL) with cranial irradiation and 2-3 years of chemotherapy showed that while the intellectual development of the older group of children (6 children; 8.3-9.5 years) was equivalent to control counterparts, the younger ALL group (9 children; 5.5-7.6 years) tended to perform somewhat below their matched controls. This was especially true of tasks measuring quantitative, memory, and motor skills, but not language tasks. Close monitoring should be done on the cognitive development of children treated for leukemia, especially those diagnosed at 2-5 years of age. (16 refs.)

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2407 **ALVAREZ, GONZOLO; EGUIGUREN, ELENA; & BOSCO, AMANDA.** Facial mimicry and intellectual function in children of different socioeconomic status. *Early Human Development*, 1(2):203-210, 1977.

Facial mimicry and intellectual function were examined in children of different socioeconomic status. A group of 100 normal boys between the ages of 6 years, 6 months and 7 years, 6 months were divided into 2 groups: Group A, which represented children of high socioeconomic status who previously attended day nurseries and kindergarten; and Group B, which included children from the poorer parts of the city who were unlikely to have had any preschool education. The children in group A were better able to reproduce facial expressions and were also taller, heavier, and performed better on the Goodenough's draw-a-man test and Bender-Gestalt tests. It may be that the facial dyspraxia of the children of Group B has an organic basis and that this deficient function is identical in etiology to their intellectual handicap. (16 refs.)

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2408 **MERCER, CECIL D.; & TRIFILETTI, JOHN J.** The development of screening procedures for the early detection of children with learning problems. *Journal of School Health*, 47(9):526-532, 1977.

Predictors of high risk children with learning problems are analyzed with respect to perinatal and developmental history, environmental factors, dental enamel defects, physical anomalies, and family history. The predictive factors from each of these areas are combined to form a composite of items that may be useful in designing a preschool screening program. It is noted that no single anomaly occurring during the perinatal period or early development of the child can be considered indicative of learning problems. However, in the past, constellations of abnormalities have been successful in predicting high risk children. A new set of screening procedures is described that could strengthen efforts at identifying these high risk children. (20 refs.)

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2409 **BELL, ANNE E.; ABRAHAMSON, DAVID S.; & MCRAE, KENNETH M.** Reading retardation: a 12-year prospective study. *Journal of Pediatrics*, 91(3):363-370, 1977.

In a study of almost 1000 children, 23 percent failed to complete first grade requirements in the first year. Failure rates ranged from 3 to 71 percent in separate schools and had an inverse relationship to socioeconomic level. A mean IQ of 97 in children from low socioeconomic status groups indicates that the high failure rate observed cannot be accounted for by lack of potential ability. Within the middle-class area, the failure rate in the open-space, non-graded school was more than double that in the traditional, graded school. There was no evidence to support the popular notion that deficits in visual perception, visual-motor, or motor skills are causal factors in reading retardation. Remedial work in fine and gross motor areas did not appear to improve reading skills. (43 refs.)

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2410 **STEFFEN, HARTMUT; & SEIDEL, CHRISTA.** [Perceptive, intellectual, school and social behavior of children with language and speech disorders.] *Zeitschrift fur Kinder- und Jugendpsychiatrie*, 4(3):216-232, 1976.

Thirty-five language- and speech-retarded first graders from two different schools for speech-retarded children served as Ss in an interdisciplinary study involving neurological, neuropsychological, and behavioral examination. Twenty of the children were found to have a developmental lag due to a maturation deficit of the brain, four had a minor brain dysfunction caused by perinatal brain damage, and 11 were diagnosed as being pure speech-retarded cases without cognitive deficits. There were more visuo-perceptual problems and learning and concentration difficulties among the 24 neuropsychologically abnormal children than among the 11 without cognitive deficits. Behavioral problems and negative influences from family environments occurred with almost equal frequency in both of these groups. (50 refs.)

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2411 **SCOTT, KEITH G.** Learning theory, intelligence, and mental development. *American Journal of Mental Deficiency*, 82(4):325-336, 1978.

Knowledge of the complexity of the relationship between learning, intelligence, and mental development has increased greatly over the last two decades, but the understanding of this overall relationship remains very incomplete. Intelligence was defined initially as the ability to learn. Subsequently, it was related to stages and then to subprocesses of learning. Research on learning in MRs, which dates mainly from the late 1950's, developed relying upon trends in experimental psychology and with little regard for this history. Certain methodological problems recur in many of the early studies, and they continue to be a source of inappropriate research designs. Various attempts were made to isolate the roles of MA and of intelligence. With growing understanding, sophisticated designs emerged. Kappauf proposed a three-dimensional model relating performance to IQ and CA. Zigler proposed a two-group approach to MR which called attention to known facts about the distribution of intelligence in the population and to the etiology of MR. However, the current lack of knowledge leaves researchers essentially without the formal means to develop a technology of intervention. (58 refs.)

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2412 **BUCKHALT, JOSEPH A.; RUTHERFORD, ROBERT B.; & GOLDBERG, KAY E.** Verbal and nonverbal interaction of mothers with their Down's syndrome and nonretarded infants. *American Journal of Mental Deficiency*, 82(4):337-343, 1978.

In an observational, laboratory-based study, verbal and nonverbal interactions were compared between 10 mothers and their Down's syndrome infants and 10 mothers and their nonMR infants. In the first phase of the procedure, a small sample of behavior was collected from the mother-infant dyads under circumstances in which mothers had been given no instructions regarding interaction with their infants. In the second phase, mothers were instructed directly to teach their infants to play with a toy. Mean mental age in the nonMR group exceeded that in the Down's syndrome group by about 5.6 months, a highly significant difference. Although there was no difference between the groups in mothers' language complexity, mothers of Down's syndrome children spoke at a significantly faster rate. Observational measures of the infants showed that Down's syndrome babies smiled and vocalized less, but mothers in the two groups failed to differ significantly on the nonverbal interactional behavior observed. NonMR infants' vocalizations appeared to occur typically in interaction with the mother, while those of Down's syndrome infants seemed more asynchronous to mothers' activity. (12 refs.)

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2413 **JARMAN, RONALD E.** Patterns of cognitive ability in retarded children: a reexamination. *American Journal of Mental Deficiency*, 82(4):344-348, 1978.

Das' (1972) exploratory study of cognitive processes in MR and nonMR children was reexamined with 67 EMR children matched for IQ and chronological age with Das' MR group. A set of cognitive tasks shown previously to measure simultaneous and successive syntheses was administered to the EMRs in random order. The instruments included Raven's Coloured Progressive Matrices, the Figure-Copying test, Graham-Kendall's Memory for Designs, a serial recall test, Visual Short-Term Memory, and Digit-Span Forward. The mean performance for the EMRs was consistent with a general decline in ability in all specific cognitive tasks as a function of lower levels of general intelligence. The data were factor analyzed and revealed that two fundamental cognitive processes, simultaneous and successive syntheses, may be identified in EMRs. The identification of these processes by a set of cognitive tests has been found to be highly similar to other recent research involving individuals from varying populations. In particular, the findings are consistent with those of Jarman and Das (1977), who found quite comparable patterns of simultaneous and successive syntheses in Ss of above-normal, normal, and dull-normal intelligence. (19 refs.)

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2414 **EWING, NORMA; & CASEY, JOHN.** Diagnostic prescriptive instruction: a review of related literature – 1970 to present. *Resources in Education (ERIC)*, 12(7):73, 1977. 16 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135133.

Research from 1970 to 1976 is reviewed to determine the present status of diagnostic prescriptive instruction for learning disabled children. Findings of previous research have failed to demonstrate conclusively the effectiveness of specific ability training, the legitimacy of nonsupportive conclusions have been questioned, and research designs have been controversial. The literature review appears to reinforce current skepticism on the effectiveness of diagnostic prescriptive instruction.

2415 **YOUNES, ROBERT P.; & WEBB, GERTRUDE.** Initial computer analysis: 201 children with learning disabilities. *Resources in Education (ERIC)*, 12(7):74, 1977. 64 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $3.50, plus postage. Order No. ED135137.

Findings from a computer analysis of 434 variables (including educational, social, medical, neurological, and psychometric factors) of 201 5- to 19-year-old learning disabled children referred to a community hospital diagnostic program are presented. The variables were analyzed according to race, sex, and age. Findings reported include that: Black families had more familial disruption and less educational attainment; Black children had more behavior problems, lower verbal ability, reading comprehension, auditory comprehension, and speech speed; more illness, alcoholism, and hospitalization occurred in White families; and White children registered more speech muscle incoordination, motor immaturity, distractibility, and coordination problems. These data contributed to conclusions that racial differences exist; that younger children exhibit greater neurological immaturity in all functioning areas; and that familial and social disruptions exert a significant negative affect on children's school performance.

2416 **JANI, SUBHASH NATWERLAL; & SWANSON, BONNIE H.** Developmental eclecticism: an integrated approach to evaluating and programming for the learning disabled. *Resources in Education (ERIC)*, 12(7):74, 1977. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135142.

The Motoric-Perceptual-Conceptual/Behavioral (MPC/B) model represents a developmentally eclectic approach to evaluating and remediating

learning disabilities in children. The model views learners and the learning process on 3 educational levels (preschool, elementary school, and high school/post school) and on 3 developmental levels (motoric, perceptual, and conceptual/behavioral) in reading, math, and science. The model emphasizes the importance of evaluation in 7 areas, including auditory/hearing tests, visually oriented tests, and educational/academic tests.

2417 **RODABAUGH, BARBARA J.; et al.** *A Study of Special Programs for Children with Specific Learning Disabilities. Final Report.* Palo Alto, California: American Institutes for Research in the Behavioral Sciences, 1976. 152 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $8.69, plus postage. Order No. ED133950.

The work of 17 Child Service Demonstration Centers (CSDS) established by the Bureau of Education for the Handicapped to develop and disseminate model projects for children with specific learning disabilities (LD) is reported. Although Federal guidelines specify the components of the program, an examination of the effectiveness of individual centers revealed little uniformity among them. Prime objectives differed in that 12 centers emphasized development of effective procedures for identifying and meeting the needs of LD children, 11 emphasized training of teachers in the use of model techniques, and 10 emphasized the dissemination of information about the nature of the CSDC program. Varying numbers and types of tests were being used, and parents were not highly involved in the center activities. Recommendations include the development of concensus criteria to guide CSDCs in the choice of tests and interpretation of results; the revision of the Federal definition of LD; and the review of requirements for parent involvement, Advisory Council participation, dissemination, and replication.

DEVELOPMENTAL ASPECTS – Social and emotional

2418 **INGALLS, ROBERT P.** Personality and social psychology of mental retardation. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook.* New York, New York: John Wiley & Sons, 1978, Chapter 11, p. 263-282.

Although MR is primarily a cognitive disorder, there are specific personality characteristics which typify many MRs, and a general consensus exists that there is a much higher prevalence of emotional disturbance among MRs than in the general population. It is not surprising that MRs should differ from nonMRs in such noncognitive variables as motivation, emotions, and personality. MRs tend to be socially isolated if not actively rejected by other people, their stigmatizing label is likely to cause them to be self-conscious, and the presence of an MR child in a family is apt to cause family stress and tension. MRs experience much more frustration and failure than do most other people. Moreover, brain damage, found in many MRs, is likely to result in emotional problems and disturbed behavior. Among other personality characteristics, MRs are likely to expect to fail, to develop a general feeling of helplessness, to have an increased need for social interaction, and to adopt unusual strategies to maintain contact with other people for as much time as possible. One common feature of MRs, particularly the institutionalized, is a stereotyped behavior, the compulsive repetition of a purposeless and frequently self-destructive behavior. (62 refs.)

2419 **KEALY, JEAN; & MCLEOD, JOHN.** Learning disability and socioeconomic status. *Journal of Learning Disabilities,* 9(9):596-599, 1976.

Three-hundred-thirty-three students comprising the entire grade 4 and grade 6 lists of 3 western Canadian urban schools and representing a broad spectrum of socioeconomic status were selected

for testing. Screening for possible learning disabled children involved analysis of individual subtest scores achieved on the Canadian Test of Basic Skills (CTBS). Seventy-six children whose performance was below the 25th percentile were identified. The Peabody Individual Achievement Test (PIAT) and Binet test results identified 35 learning disabled children (educational age less than 85 percent of CA and less than 85 percent of MA). Eighteen Ss were from upper level socioeconomic status families; 17 were from lower level families. The Pupil Services Department diagnosed 13 (72.5 percent) of upper socioeconomic level Ss, and only 6 (35.2 percent) of lower level Ss. Although no significant difference in defined learning disability was found between upper and lower socioeconomic groups, the difference in the rate of diagnosis significantly favors the upper status child. (16 refs.)

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2420 Utah State University. *Affective Behavior in Preschool Children. Final Report.* Casto, Glendon; et al. Logan, Utah: Exceptional Child Center, 1976. 244 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $12.71, plus postage. Order No. ED135162.

The final report of a project to review the state of the art in basic areas of affective development (emotional state and personal attitudes) in the normal and handicapped preschool child is presented. Chapter 1 covers 3 general areas: a historical discussion of theories of affective development, theories of emotion, and the 5 dimensions of affective development: emergence of self, caretaker attachment, adaptation-mastery, self concept, and socialization. Chapter 2 discusses affective development involving 6 handicapping conditions: emotionally disturbed, speech impaired, hearing impaired and deaf, physically handicapped, MR, and blind and partially seeing. Chapter 3 includes an annotated bibliography on 27 instruments and reviews the available assessment instruments which measure affective development in the preschool child. Chapter 4 presents a bibliography of 29 available curriculum materials for affective development. Chapter 5 covers gaps in theory and research and recommendations for further study of affective development. The final section presents an annotated bibliography of references related to theories of emotion and overviews of affective development in children, specific aspects of affective development, affective development of handicapped children, affective education and curriculum, and instrumentation and research methodology in the study of affective development.

2421 Utah State University. Affective development in the normal and handicapped preschool child. Summary report. Review and recommendations. Casto, Glendon; et al. Logan, Utah: Exceptional Child Center, 1976. 66 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $3.50, plus postage. Order No. ED135163.

The summary report of a project designed to review the state of the art in basic areas of affective development in the normal and handicapped preschool child discusses theories of affect and development of specific emotions, with particular emphasis on 5 dimensions: emergence of self, caretaker attachment, adaptation-mastery, self concept, and socialization. Six handicapping conditions that may impinge upon affective development are discussed; MR; hearing impairment and deafness, blindness and partial sight, impaired speech, physical handicap, and emotional disturbance. Information gaps in the area of affective disturbance are identified, and suggestions for research and development strategies are proposed. Charts of the available instruments and curriculum materials for affective development are included.

2422 MURRAY, CHARLES A.; et al. *The Link Between Learning Disabilities and Juvenile Delinquency: Current Theory and Knowledge.* Washington, D.C.: American Institutes for Research in the Behavioral Sciences, 1976. 202 p. Available from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Price $2.70. Stock No. 027-000-00479-2.

The results of a study of the possible relationship between learning disabilities and juvenile delinquency are presented. The project includes a literature search, an inventory of Law Enforcement Assistance Administration (LEAA) demonstration projects dealing with delinquency and having a direct involvement with learning disabilities or remediation, and a survey of current theories of experts in the field of special education. Data analysis indicates the case for the "learning disabilities/juvenile delinquency link" to be not strongly documented, but suggestive. It is recommended that LEAA resources be used to support a study of the incidence of learning disabilities in delinquent and nondelinquent adolescent populations and a program examining the extent to which learning disabilities could be effectively remediated for adolescent delinquents. An annotated bibliography of the reviewed literature, an inventory of demonstration projects, and summaries of the learning disabilities/juvenile delinquency studies are appended.

2423 **BURNS, HARRIET P.** Emotional problems of the learning disabled. *Resources in Education (ERIC)*, 12(7):73, 1977. 30 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED135135.

The problem of emotional and behavioral disturbance in children with learning disabilities is discussed, including the suggestions that teachers trained in learning disabilities are given little background in emotional problems, that learning disability texts contain minimal information about dealing with behavioral disturbance, and that the connection between learning disabilities and delinquency has been overstated. Children with emotional problems are seen to be ill-served in the changing and frequently turbulent structure of educational settings. Educators and administrators should interpret the field of learning disabilities realistically to the public and advocate behavior training for regular and special education teachers.

2424 **ROSS, ALAN O.** What about the child who refuses to go to school? In: Ross, A. O. *Learning Disability: the Unrealized Potential.* New York, New York: McGraw Hill, 1977, Chapter 8, p. 145-162.

There is no necessary connection between learning disabilities and school refusal, except that both have to do with the child's school experience and, on occasion, a child who is not doing well in his or her academic work may refuse to attend classes. Refusal to go to school can take the forms of truancy, school phobia, and separation anxiety. In some instances, the difference between truancy and school phobia may be no more than a difference in the economic background of the child's family. School phobia is probably a mixture of real fears and a variety of learned ways of responding to stress. The most important principle in dealing with a child in the first three or four grades who expresses fear of school and has begun to refuse to go to school is to insist that school attendance be resumed. The longer a child remains away from school, the more difficult it will be to reverse the trend of school refusal and the more likely it is that a full-blown school phobia will result. In cases of separation anxiety, it is necessary to determine what there is about leaving the mother that makes it so unpleasant. In many instances, mother and child support each other's clinging together, and each must learn to let go. Lesson refusal is another way in which a child can respond to unpleasant school-related experiences. It frequently results from many unrewarding experiences related to participating in classroom activities and may be corrected with greater attention from the teacher. (2 refs.)

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2425 **ROSS, ALAN O.** The child whose behavior is a source of trouble. In: Ross, A. O. *Learning Disability: the Unrealized Potential.* New York, New York: McGraw Hill, 1977, Chapter 9, p. 163-185.

The child whose behavior results in frequent complaints by school authorities gets into trouble either because of fighting with other children or because of classroom behavior which the teacher considers unacceptable. Aggression is a response. The most likely situation in which the response has a high probability of being reinforced is when the child wants something and obtains it as the result of making a forceful response such as pushing, hitting, kicking, or screaming. If a high-magnitude response removes anger-provoking frustration, then this response will be reinforced

not only by obtaining the desired goal but also by reduction of anger. There are at least two other ways through which children can learn to make aggressive responses. One is by having meaningful adults who are sources of important reinforcers present such reinforcement when the child or someone else is engaging in aggressive behavior. The parent as model can also have a powerful effect on the child. Teacher attention has been demonstrated to be an effective reinforcer for desirable, nonaggressive behavior in the classroom. (11 refs.)

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2426 *Autism. A Selective Bibliography. Exceptional Child Bibliography Series No. 603.* Reston, Virginia: Council for Exceptional Children, 1976. 32 p. Available from CEC Information Services and Publications, Council for Exceptional Children, 1920 Association Drive, Reston, Virginia 22091. Price $4.00.

Approximately 125 abstracts and associated indexing information are provided for documents or journal articles published from 1966 to 1975 and selected from the computer files of the Council for Exceptional Children's Information Services and the Education Resources Information Center (ERIC). Titles were chosen in response to user requests and analysis of current trends in the field of autism. Included in each abstract is bibliographic data (identification or order number, publication date, author, title, source or publisher, and availability); descriptors indicating the subject matter covered, and a summary of the document's contents. Instructions for using the bibliography are included, along with a list of journals from which articles were abstracted and an order form for ordering microfiche or paper copies of the documents through the ERIC Document Reproduction Service.

2427 California University (Riverside). Outerdirectedness as a function of state anxiety and experimentally induced success and failure in the educable mentally retarded. MacMillan, Donald L. & Graf, Victoria L. *Resources in Education. (ERIC).* 12(5):77, 1976. 75 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $3.50, plus postage. Order No. ED132757.

No correlation was found between anxiety and outerdirectedness in 95 EMR male Ss (9-10.5 years old) who were given the Test Anxiety Scale for Children (TASC) and tested on a measure of outerdirectedness involving a puzzle task. The same results were recorded after imposing a failure condition and repeating the TASC to detect a change in anxiety level. Ss tested in the failure condition finished the puzzle task faster than the controls, but a significant rise in anxiety occurred following receipt of the failure condition. A research review containing about 90 references and appended material that illustrates the design of the experiment constitutes the bulk of the document.

2428 Emotionally disturbed—counseling and therapy. A selective bibliography. Exceptional Child Bibliography Series No. 629. Reston, Va.: Council for Exceptional Children, 1976. 33 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED129011.

A bibliography on emotionally disturbed—counseling and therapy contains approximately 145 abstracts and indexing information for documents or journal articles selected from the computer files of the Council for Exceptional Children's Information Services and the Education Resources Information Center (ERIC), and published from 1950 to 1975. Abstracts fall under one of the following headings: General, Psychotherapy, Group Therapy, Residential Therapy, Play Therapy, Family Therapy, Art and Music Therapy, and Drug Therapy. Abstracts contain bibliographic data, descriptors indicating the subject matter covered, and a summary of the document's contents. Instructions are provided for using the bibliography, and a list of journals from which articles were abstracted is included. An order form is provided for ordering paper or microfiche copies of the documents from ERIC Document Reproduction Service.

2429 MCDONALD, G,; MCCABE, P.; & MACKLE, B. Mealtime behavior in the profoundly subnormal. *British Journal of Mental Subnormality*, 23, Pt. 1(44):29-35, 1977.

Three male and two female profoundly subnormal residents of a special care hospital (mean chronological age 15 years 6 months; mean social age on the Vineland Social Maturity Scale 21 months) participated in a study designed to develop eating skills. The study paradigm contained a training stage (with pretest and posttest measures) followed by a no-training stage (also with measures). After a 12-week training program, the Ss were returned to baseline conditions (no training) for a period of 3 weeks. Then they were reassessed in order to determine the permanence of the newly acquired skills. The training program was reinstated for another 3 weeks, and a final assessment was made. Time-out procedures and removal of the plate for short periods or physically restricting the patient for a few seconds were used to reduce inappropriate behaviors. All correct responses were praised verbally at least in the early stages of training. The results indicated that eating skills can be developed even in profoundly subnormal adolescents who have relied previously on nursing assistance at mealtimes. The data also showed that hard-won skills at table were lost when training was discontinued. (16 refs.)

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2430 CUNNINGHAM, THOMAS; & PRESNALL, DAVID. Relationship between dimensions of adaptive behavior and sheltered workshop productivity. *American Journal of Mental Deficiency*, 82(4):386-393, 1978.

A factor analysis was performed on the 24 domains of the American Association on Mental Deficiency (AAMD) Adaptive Behavior Scale using a sample of 217 adult sheltered workshop clients. Of the seven dimensions found to describe adaptive behavior, Personal Independence, Social Maladaptation, and Personal Maladaptation accounted for 80 percent of the variance in the factor matrix. Scores on each of the 7 factors were obtained for all clients and used to predict productivity in a workshop setting as defined by average hourly salary for the time period during which the scale was administered. A stepwise regression analysis yielded a highly significant regression effect in which Personal Independence ($F=65.66$, 1/211 df, $p<.001$) and Social Maladaptation ($F=5.86$, 1/211 df, $p<.015$) accounted for 25 percent of the variance in salary and had a multiple correlation coefficient of .50 with the predicted variable. Adaptive behavior was judged to be a multidimensional variable which significantly affects productivity in sheltered workshop settings. Interestingly, Personal Maladaptation appeared to interfere only minimally with workshop adjustment if social adjustment was adequate and Personal Independence skills and abilities were present. (19 refs.)

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2431 CAMPBELL, BRIAN; & GRIEVE, ROBERT. Social and attentional aspects of echolalia in highly echolalic mentally retarded persons. *American Journal of Mental Deficiency*, 82(4):414-416, 1978.

The frequency of echolalia was studied in a sample of 12 highly echolalic patients from 7 institutions for MRs in Scotland. When Ss were presented with a standard set of questions under conditions which varied in appropriateness for exchange of discourse (questions presented with the examiner and patient face-to-face vs. questions presented with the examiner's face averted vs. questions addressed towards another person sitting silently beside the patient), the proportions of silent, nonechoic, or echoic responses differed. Clearly, most echolalia (55 percent) occurred when the examiner and patient were face-to-face. Besides showing considerable sensitivity to aspects of discourse exchange, Ss exhibited some limited capacity for processing linguistic information. The results indicate that echolalia in MR does not consist of indiscriminate repetition of overheard speech. Rather, even highly echolalic MRs demonstrate some ability to produce appropriate nonechoic replies in response to questions. Otherwise, in response to overheard speech, they either tend to remain silent or produce an echoic response, depending upon how clearly they perceive that the speech has been addressed towards them. (5 refs.)

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2432 KLABER, M. MICHAEL; & BUTTERFIELD, EARL C. Stereotyped rocking--a measure of institution and ward effectiveness. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 48, p. 460-472.

Observational techniques were employed to determine whether the prevalence of SMRs observed to be rocking in a stereotyped fashion differentiated comparable wards within different institutions and within a given institution. A high degree of interrater reliability was obtained following preliminary training, and it was decided that the raters would work independently in the collection of data. A total of 64 one-half days of observation was collected for the study. Four large, multipurpose, state-supported institutions for MRs in 3 states were selected for observation. The particular wards studied in each of these institutions were all of those serving preponderantly ambulatory patients who were SMR. The percentage of MRs who were rocking was shown clearly to differentiate different institutions and different wards within single institutions. The finding that rocking was most prevalent prior to meals and shift changes confirms an earlier finding. The nature of the behavioral restriction imposed upon MRs in the ward observed in this study at these times suggested that this increase in rocking resulted from a lack of environmental stimulation and from the restriction of other behaviors. (11 refs.)

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2433 COLWELL, CECIL N.; RICHARDS, EILEEN; MCCARVER, RONALD B.; & ELLIS, NORMAN R. Evaluation of self-help habit training of the profoundly retarded. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 49, p. 473-482.

An intensive self-help training program was carried out at a new short-term residential institution for PMR and SMR children ranging in chronological age from 4 to 16 years, and Checklist-type scales were developed to measure performance in dressing, feeding, and toileting. To date, 47 children have been admitted to the institution, and 24 of these have been discharged. The children were evaluated on the 3 self-help skills at admission and again at discharge, or to the present. Substantial changes occurred in all 3 areas, although the changes cannot definitely be attributed to the training program, since an appropriate control group was not used. Interrater agreement was quite substantial. The children also seemed to become more responsive to their environment and to other people during their institutionalization. One of the more impressive statistics reported was the average mental age gain of 3.36 months made by the children over the average period of 7.1 months. Apparently, the specific training in feeding, toileting, and dressing generalized to other situations, and this fact was reflected in the increased mental age scores. (4 refs.)

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2434 GIBSON, DAVID; & BROWN, ROY I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, 482 p. (Price unknown.)

Recently developed behavioral enhancement approaches to PMRS and SMRs are presented. Feeding and its management, dressing and personal grooming, toileting and its managements, abuse abatement, sensorimotor upgrading, communication skills, play skills, social and affective skills, reduction of stereotypy, group programming, and evaluation and follow-up are discussed.

CONTENTS: Silk Purses and Sow's Ears: Responsible Behavioral Management for the Severely and Profoundly Retarded; The Severely Retarded Learns to Care for Himself: Advances in Habit Training; Self-Care Is Not Enough: Advances in Contact Skills Training; Institutions Have a Place: Advances in Group Programming; Some Things Do Not Work: Monitoring, Evaluation, and Follow-up.

DEVELOPMENTAL ASPECTS — Psychodiagnostics

2435 **ROWE, HELGA A. H.** 'Borderline' versus 'mentally deficient': a study of the performance of educable mentally retarded adolescents on WISC-R and WISC. *Australian Journal of Mental Retardation*, 4(5):11-14, 1977.

The Wechsler Intelligence Scale for Children-Revised (WISC-R) and the WISC were administered in counterbalanced order to 44 EMRs (chronological age 12 to 16 years) attending special schools for the intellectually handicapped. WISC-R was administered first to 24 Ss, and WISC first to 20 Ss. Ss were assigned randomly to the two orders of test administration. To save testing time, only the 10 subtests of WISC-R and WISC which are required to obtain IQs were administered. WISC-R IQ estimates tended to be considerably lower than WISC IQ estimates, a finding which supported the results of previous research concerned with the 2 tests in the United States and in Australia. The failure of the present results to agree with the findings of the earlier Australian study in relation to Ss in the low average and borderline ranges was explained by the fact that the previous sample was designed to be representative of secondary school students, and not the population below IQ 85. Possible disadvantage for EMR children and adolescents may occur as a result of the administration of WISC-R unless the criteria for placement in special schools and for sheltered workshop employment are revised. (7 refs.)

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2436 **KIRSHNER, A. J.; & SAROJ, SATISH K.** Kirshner Saroj Visual Perceptual Speed Test: a test of visual readiness for reading. *Resources in Education (ERIC)*, 12(7):74, 1977. 25 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135143.

The Kirshner Saroj Visual Perception Speed Test (KSVPST), a measure of perceptual speed using pictures to identify children whose reading difficulties are due to visual processing deficiencies, is described. The Keystone Visual Skills Test, the KSVPST, and reading readiness tests were administered to 323 children 6-13 years old. Results are interpreted to indicate that perceptual speed is significantly related to reading ability. It is suggested that visual training to increase perceptual speed should be considered as part of a total program for children with reading problems. Seven appendixes are provided, including information on the validity and reliability of the KSVPST.

2437 **MERCER, JANE R.** Cultural diversity, mental retardation, and assessment: the case for nonlabeling. Paper presented at the Fourth International Association for the Scientific Study of Mental Deficiency, Washington, D.C., August 22-27, 1976. 17 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED133404.

The System of Multicultural Pluralistic Assessment (SOMPA), which is designed to identify and assess the culturally disadvantaged non-English speaking (Anglo) child within a culturally diverse society, is described. A triangular evaluation process, SOMPA was developed from testing 700 caucasian children from the Anglo culture, 700 Black children, and 700 Latino children (90 percent of Mexican-American heritage), all 5 to 11 years old. Thus, the SOMPA Medical Model screens the child for possible anomalies in the Health History, as well as the results from physical dexterity and vision or hearing tests. Secondly, the Social System Model of SOMPA evaluates the individual child's role in the family, in the nonacademic aspects of school experience, in peer groups, within the community, as earner/consumer, in self-maintenance, and in academic school settings. Thirdly, SOMPA's

Pluralistic Model compares the child's performance to that of others from the same sociocultural background and draws inferences about the child's Estimated Learning Potential. By this process, it is hoped that the non-Anglo child whose potential may be thwarted by sociocultural isolation will be identified.

2438 **IRETON, HAROLD, et al.** Minnesota Child Development Inventory identification of children with developmental disorders. *Resources in Education (ERIC)*, 12(5):170, 1977. 16 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED133373.

Minnesota Child Development Inventory (MCDI) measures were compared to results of psychological evaluations of intellectual functioning, fine motor skills, and expressive language development to assess the validity of MCDI results. The study sample consisted of 109 preschool children referred to a university clinic for psychological evaluation. Results of 4 MCDI scales (General Development, Fine Motor, Expressive Language, and Comprehension-Conceptual) and the MCDI profile as a whole compared well with psychological evaluation results. The MCDI uses an inventory format to obtain mothers' observations.

2439 **MAUSER, AUGUST J.** *Assessing the Learning Disabled: Selected Instruments*. Second edition. San Rafael, California: Academic Therapy Publications, 1977, 109 p. (Price unknown.)

More than 300 assessment tools applicable for the evaluation of children and adults with specific learning disabilities are described in terms of chronological age applicability, time to administer, and salient features. Most of the tests presented have been standardized and are commercially available.

CONTENTS: Intelligence Tests; Preschool Readiness Tests; Motor, Sensory, and Language Tests; Reading Readiness Tests; Diagnostic Reading Tests; Survey Tests--General and Reading; Oral Reading Tests; Diagnostic Tests of Math Abilities; Creativity Tests; Social Adjustment--Personality Scales; Vocational Tests; Miscellaneous Tests; Publishers.

2440 **ROSS, ALAN O.** What can one tell from tests? In: Ross, A. O. *Learning Disability: the Unrealized Potential*. New York, New York: McGraw Hill, 1977, Chapter 5, p. 61-93.

A learning-disabled child may encounter difficulties which can result in a distortion of the information one can glean from an intelligence test. A test such as the Wechsler Intelligence Scale for Children-Revised yields results which merely summarize how a child has performed on the items which make up this instrument. The test performance tells nothing of the child's native intelligence and tells little about how well the child should be doing in school. The Illinois Test of Psycholinguistic Abilities (ITPA) was not intended to be a test for evaluating learning-disabled children, but it is often used for that purpose. Based originally upon a model of verbal communication, it has very little logical relationship to learning ability. The Developmental Test of Visual Perception (DTVP) originated by Marianne Forstig, another highly popular instrument which is used frequently with learning-disabled children, seeks to assess development in five supposedly independent abilities. As with the ITPA, it is questionable whether a learning-disabled child who is given the DTVP followed by specific training aimed at improving DTVP performance will end up being able to do better academic work. (4 refs.)

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2441 **SPARROW, SARA S.; & CICCHETTI, DOMENIC V.** Behavior Rating Inventory for Moderately, Severely, and Profoundly Retarded Persons. *American Journal of Mental Deficiency*, 82(4):365-374, 1978.

The reliability and validity of the behavior of a sample of 45 institutionalized MR children with total IQs between 2 and 53 were assessed by the Behavior Rating Inventory for the Retarded (BRIR), a new scale measuring communication, self-help, physical skills, self-control, and social behavior. After the a priori BRIR scales were developed, they were administered to pairs of independent observers who were interviewed by psychologists. Specifically, each of the 45 children was rated by two nurse's aides, one from the day shift and one from the afternoon shift. Clinically and statistically acceptable levels of interrater

agreement were found. With respect to validity, (a) several factors loaded very highly on items consistent with the a priori labeling of subscales, (b) two of the factors (cognitive and psychomotor development) could account for about 75 percent of the explained variance in ward placement levels (multiple R=.86), and (c) individual items on the BRIR correlated highly with independently derived measures of the actual behavior that these items represented. The major advantages of the BRIR over existing scales are its clearly demonstrated validity and relative ease of administration and scoring. (35 refs.)

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2442 **BALTHAZAR, EARL E.; & STEVENS, HARVEY A.** Scalar techniques for program evaluation with the severely mentally retarded. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 47, p. 449-459.

An ambulant SMR population was studied using Battery A of the Central Wisconsin Colony Scales of Adaptive Behavior. Battery A, and the subsequent batteries of the Scale, were developed by the method of direct observation. Standardized rater worksheets and behavior definition lists were developed for rater training purposes, and the profile score categories related to self-help and social skills were established. Tentative 3-point rating scales were developed for the self-help profile score categories of the Battery, and frequency scales were designed for the social skills profile score categories. On the basis of observational studies, 4 profile score categories were developed in the area of self-help skills. The 3-point scales were found to be useful in the initial phase of rater training but have been superseded by a more conventional 5-point scale. The frequency scales utilized in the social skills category suggested the usefulness of frequency measures to evaluate adaptive behavior in a restricted population. For this reason, the individual scales under self-care skills presently are based on frequency measures. (8 refs.)

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2443 **INGALLS, ROBERT P.** Intelligence and intelligence tests. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook.* New York, New York: John Wiley & Sons, 1978, Chapter 2, p. 17-51.

There is general confusion and misunderstanding associated with the concept of intelligence, and the increasingly circumscribed use of intelligence tests is a sign of progress in the field of MR. An intelligence test is nothing more than a collection of items which one person or a small team of people believes can measure intelligence. These items are not based upon any special insight which psychologists have about mental abilities. Their main value is that they have been standardized on large numbers of children, so that norms are available. Intelligence is not a thing or a process, and it therefore cannot cause behavior. Many of the myths associated with the folk meaning of the word intelligence have been disproved by research. Most people do not now think in terms of one unitary mental ability but in terms of many mental abilities, with the possiblity that a child can be strong in some areas of mental functioning and weak in others. While intelligence tests do a reasonably good job of predicting school performance, the relationship between IQ and success in later life is quite low. At the present time, intelligence testing is experiencing a slow but well-deserved death. (37 refs.)

2444 **CRICHTON, JOHN U.; REIMER, DONNA C.; & EAVES, LINDA C.** Social and environmental factors in assessing school readiness: a report of some preliminary investigations. *Clinical Pediatrics,* 15(6):523-527, 1976.

The Modified Predictive Index (MPI) was administered in the spring of 1972 to 2,656 children enrolled in the kindergartens of 72 of 94 representative Vancouver (British Columbia, Canada) schools. The tests utilized twelve approaches to language, visual and auditory perception, and visual-motor skills. Of 2,379 children who completed a valid kindergarten test and who were not hindered significantly by a poor command of English, the scores of 313 (13.1

percent) were considered to be MPI failures. The MPI failure rates rose as the socioeconomic circumstances became worse, and the number of boys who failed exceeded the number of girls who failed by a ratio of 1.3:1. In the teacher checklist completed at the end of the kindergarten year, the teacher was asked whether she believed the child to be ready for entry into first grade. At this time the teachers had no knowledge of how the children had scored on the MPI. The teachers thought that 98 percent of children who had passed the MPI and 82 percent of those who had failed were ready for Grade 1. Only 40 percent of poor scorers on the MPI were labeled by their teachers as having problems which could affect learning. (12 refs.)

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2445 **BARROWS, THOMAS S.**; et al. Procedures document for psychoeducational diagnostic services for learning disabled youths. Princeton, New Jersey: Educational Testing Service, 1977. 53 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $3.50, plus postage. Order No. ED139843.

The listed procedures are intended to support intepretation of study data and replication of the study's procedures and to provide guidance for the implementation of a study of learning disability among 12-15 year old adjudicated delinquent boys and non-adjudicated public school boys of the same age. The task is considered in several parts: selection of a sample from 2 populations, reviewing records and applying decision rules for the selection of boys for further diagnostic assessments, making recommendations for remediation, initial analysis and post-remediation data collection. Several activities parallel these major procedures, including information reporting to several audiences, quality control, and the briefing of assessors.

2446 **JOSEPH, ANDRE.** Bicultural socialization and the measurement of intelligence. *Resources in Education (ERIC),* 12(9):163, 1977. 9 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED138616.

Because intelligence tests are really only systems of classification of individuals with reference to others, such classification systems make it impossible to interpret a deficiency reflected by test scores in other than a socio-cultural frame of reference. The California Short Form Test of Mental Maturity and The Black Intelligence Test of Cultural Homogeneity were administered to approximately 150 Black and White seventh grade children, with information of a socioeconomic nature collected on each. Findings indicate that traditional tests of intelligence are specific for certain ethnic-socioeconomic groups within the larger culture. It was concluded that the Black Intelligence Test of Cultural Homogeneity should contain both stems and distractors taken from the "Black experience" and be administered orally; that the Black Intelligence Test of Cultural Homogeneity was biased in favor of Black middle class over Black lower and White middle and lower; and that the California Test was biased in favor of White middle class populations over White lower and Black middle and lower.

2447 **EVANS, JOYCE S.** *Observational Checklists for Referrals: Technical Report. Final Report.* Austin, Texas: Southwest Educational Development Laboratory, 1976. 103 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $6.01, plus postage. Order No. ED138022.

The technical report on development of the Observational Checklists for Referral (OCR), developed to assist teachers of young children in identifying problems that interfere with learning, making appropriate referrals to other professionals, and communicating with parents and professionals is presented. Covered in the sections are formative evaluation reports from users, statistical analyses of data obtained from 2 validation studies, recommendations regarding use and further development, and summaries of external consultant critiques. Specific topics addressed are criterion-related validity, content validity, construct validity, teacher feedback, user

comments, and procedures and comparisons of 2 validation studies. Appended are a consultant speech form; a consultant medical form; a teacher feedback form; consultant reviews; instruction for consultants; and a pilot test version of the OCR which includes sections on health, general behavior, hearing, vision, motor abilities, and speech.

TREATMENT AND TRAINING ASPECTS – Educational

2448 **BORAKOVE, BARRY S.; & *CUVO, ANTHONY J.** Facilitative effects of coin displacement on teaching coin summation to mentally retarded adolescents. *American Journal of Mental Deficiency*, 81(4):350-356, 1977.

Two procedures for teaching coin summation to MR adolescents were examined. Fourteen MRs (chronological age 15.3 years) were assigned to either displacement or nondisplacement experimental conditions. Subjects in both groups were first taught to count a single coin and then sum that coin in combination with coins previously taught. Training methods included modeling, modeling with subject imitation, and independent counting by the subject. Although both groups improved from pre- to posttest, the experimental subjects who performed the displacement procedure of moving each coin aside after it was counted acquired significantly greater summing proficiency, did so more rapidly, and maintained that skill better than trainees who did not use the manipulation procedure. Displacement procedures may compensate for attention and retention deficits of MR persons, a factor that should be taken into greater account in designing instructional programs. (10 refs.)

*Rehabilitation Institute
Southern Illinois University
at Carbondale
Carbondale, Illinois 62901

2449 **KELLY, JOHN B.; & SAMUELS, MARIAN.** A new look at childhood autism: school-parent collaboration. *Journal of School Health*, 47(9):538-540, 1977.

Special problems experienced by parents of autistic children are described, as well as methods schools can develop to work profitably with these parents, and the gains that can be expected when parents, school personnel, and other professionals share in home-school evaluation and the planning of programs. It is noted that in order to evaluate and individualize a treatment program for each child, there is a need to evaluate a family's ability to assist in the program. In this manner ongoing realistic contacts are needed and several recommendations for their implementation are given. The educational program of a center for autistic children is analyzed as an example of a realistic and effective program. (12 refs.)

Brentwood Center for Educational Therapy
801 Via de la Paz
Pacific Palisades, California 90272

2450 **TEIN, R. G.** Early intervention via educational programs for parent-infant-young children with developmental delays and disabilities. *Australian Journal of Mental Retardation*, 4(6):10-12, 1977.

Research over the past several decades with infants at risk for developmental delays or disabilities has indicated that learning experiences made available during the first days and weeks of life may be of critical importance. Teaching parents to become educators and important members of the team should begin very early and continue through the vital developmental years. At the Parent-Child Learning Centre of Torrens College of Advanced Education in South Australia, parents are involved from the moment their child is seen by the staff. Several developmental programs for parents to teach their children are based upon the child's total profile. The use of parents as educators allows learning to take place within the child's natural environment, the home, which is the ideal setting for helping the child to learn more effectively. At present, a Down's syndrome program for parents and children is being established at Lady Gowrie Pre-school in conjunction with Torrens College staff and students to promote the eventual integration of these children into normal preschools. (6 refs.)

Parent-Child Learning Centre
Torrens College of Advanced Education
South Australia

2451 **SINGH, N. N.; AHRENS, M. G.; & STOTT, G.** Training for number conservation using film mediated modeling. *Australian Journal of Mental Retardation*, 4(6):16-20, 1977.

A videotaped procedure was used to train EMR children (chronological age 6 yrs 6 mos to 18 yrs 1 mo) to conserve on Piagetian number tasks. Forty children were given pretests and posttests for conservation of number. Half of the children then received film-mediated training instructions on the concepts of "same," "more," and "less." Neither the Piagetian transformation nor the invariance principle was employed in the training. The procedure emphasized correct observational, verbal, and comparison responses made by the model. An analysis of variance with repeated measures on one factor and further analyses with the Scheffe test of the differences between trained and untrained Ss were used to analyze the data. A significant interaction was observed between training and gains in conservation ability. The results showed that videotaped training procedures can be used to induce higher stages of Piagetian operational thought. Taken together with previous findings, the results indicate the efficiency of modeling techniques as a tool for classroom instruction for normal and MR children. (23 refs.)

Department of Psychology
Mangere Hospital and Training School
Mangere, New Zealand

2452 **GALLETLY, SUSAN; AMPRIMO, DENISE; & JOACHIM, RON.** A language development program for the institutionalized mentally retarded: the use of a paraprofessional trainer. *Australian Journal of Mental Retardation*, 4(6):20-22, 1977.

A language development program was delivered to 24 severely intellectually handicapped young adults from a residential training center for the intellectually handicapped by a paraprofessional trainer. The Ss were matched for age, age at institutionalization, length of institutionalization, and baseline score with 24 other residents who did not receive the language training. Half of each group attended a daily skills development program which was independent of the language development program. Measures were taken before the program began, 3 months later when the program ended, and at a 3-month follow-up. The results indicated significant improvement of language skills in Ss receiving the language training, both at the conclusion of the program and at follow-up. Contrary to expectations, Ss enrolled in the skills development program showed no additional language skills improvement over their counterparts who were not enrolled in the skills development program. Despite the difficulties involved, this type of program is an effective way to deploy paraprofessional staff where more highly qualified staff are at a premium. (5 refs.)

2453 Editorial. *British Journal of Mental Subnormality*, 23, Pt. 1(44):1-3, 1977.

A study of managements at Adult Training Centres (ATCs) has provided an abundance of qualitative information of both an encouraging and a depressing nature. Three hundred and five ATCs catering to more than 24,000 adult trainees replied to a questionnaire. The most frequently mentioned aim was to provide work training (47.5 percent), while a large number also noted their aim to develop potential to the maximum. It is depressing to hear the same old meaningless phrase repeated year after year despite the fact that all training courses for teachers-instructors have stressed the importance of defining goals in specific terms. It is good to hear that ATCs say they aim to develop independence, to make trainees socially acceptable, and to encourage trainees to learn to take more responsibility, but centers mentioning these goals are in a conspicuous minority (about 20 percent). A quarter to a third of ATC staff use a structured, formal teaching method, but not quite half of the trainees are involved in these activities. The survey reflects the willingness of ATCs to improve services, but it also points up weaknesses which could adversely affect proposed new services.

2454 **WHITE, RALPH.** Education of the retarded: a point of view. *Education and Training of the Mentally Retarded*, 11(4):295, 1976.

The truly MR person does not become literate, yet teachers continue to place more emphasis on reading than on any other skill. At the time that the MR reaches working age, he will need skills enabling him to move within his life space and to hold a job successfully. He will have to be able to

get along with his employer and fellow employees, to follow directions, and to evaluate his own performance, and he will need good personal habits. Educational experiences should be provided which proceed toward realization of these needed skills, with academics utilized as tools to achieve these goals rather than being the goals themselves. If what is taught to MRs in today's lessons cannot be used in a practical way today or tomorrow, it is a waste of time. Terminal education comes all too soon in the lives of MRs to lose precious time in teaching meaningless information.

2455 **HARTMAN, ROBERT K.; & HARTMAN, JOYCE A.** The two-directional resource room: report on a pilot project. *Education and Training of the Mentally Retarded*, 11(4):296-303, 1976.

In recognition of the mounting research evidence against any clear superiority of the special class approach to a regular class placement, the Darien (Connecticut) school system implemented a partially integrated approach involving a pilot program in a class for intermediate level EMR children during the 1970-71 school year. The unique feature of the program was the two-directional nature of the resource room. What had been the EMR classroom was changed in name as well as in spirit to a resource room for all slow learners. Consequently, what had been a self-contained class for MRs became a resource room for children needing special help who could not qualify for other existing programs. A second advantage to such a cooperative program was the help it provided for the regular class teacher who was increasing her load by accepting the children previously served in the self-contained EMR class. The program reflects a new movement in special education which brings with it certain administrative difficulties and greater demands on the time and skill of special education teachers. Those involved in the Darien program are convinced of its worth but also recognize the need to plan carefully for each individual child if such a program is to be effective. (16 refs.)

Regional Educational Assessment
and Diagnostic Services, Inc.
Lakeville Hospital
Lakeville, Massachusetts

2456 **WARNOCK, NANCY J.** Making general education "special." *Education and Training of the Mentally Retarded*, 11(4):304-308, 1976.

Administrators of special education programs for EMR students in the state of Oregon were surveyed to determine the kinds of administrative problems and possible alternative courses of action involved in integrating EMRs into regular classrooms. Of 110 administrators responsible for EMR classes, 84 responded to the questionnaire. The data indicated that the greatest perceived administrative problem involved changing attitudes, with 4 out of 5 administrators believing that nonaccepting attitudes on the part of teachers and students would be a major obstacle. Three-fourths of the administrators emphasized the need for individualized instruction. About one-third listed special materials, teacher training, and class size as administrative problems. Funding was not perceived as a major administrative concern. Resource rooms or learning centers were the most frequently named alternatives along with a need for extensive inservice workshops to train teachers for the necessary changes. One plan for inservice training would involve all of the staff of a school, while another plan would involve selecting special education teachers, remedial and/or other master teachers and retraining them to be educational specialists. (12 refs.)

Special Education Division
School of Education
University of North Carolina
Chapel Hill, North Carolina

2457 **ROGOW, SALLY M.** Play and reality: essentials of educational planning for blind retarded children. *Education and Training of the Mentally Retarded*, 11(4):314-317, 1976.

Both blindness and MR distort, delay, and interfere with the accuracy of perception, and educational planning for blind MR children must be based upon a clear understanding of the difficulties encountered by these children in forming realistic notions of the world around them. Play is perhaps the main educational vehicle in the curriculum for young blind MRs. Spontaneous play behavior does not come easily to these children, but it can be coaxed with the help of careful planning, ordered sequences of activi-

ties, and the use of materials which are easily managed, do not have multiple parts, and have vivid sound-producing and tactile qualities. The ability of the child to develop meaningful concepts of objects depends upon his learning to form associations between all the features of the object. Spoken language is the single most important means of communication for blind MR children, who cannot read the gestural language common to many MR children, and communicative competence is a major aspect of their language training. Orientation and mobility are essential aspects of educational planning for the blind MR child, for without them, he is prevented from making his own explorations. (2 refs.)

Department of Special Education
University of British Columbia
Vancouver, British Columbia
Canada

2458 **MCCORMACK, JAMES E.** Using a task analysis format to develop instructional sequences. *Education and Training of the Mentally Retarded*, 11(4):318-323, 1976.

The reliable recording of instructional sequences allows the teacher to easily monitor the progress of individual learners and to make the modifications necessary to maximize progress, and it insures that a successful sequence will be available as a reference for teachers with similar needs. The first step in designing an instructional sequence is for the teacher to determine what skills the learner needs to acquire based upon formal and/or *in situ* assessment. It is helpful if each skill is written out in the form of an instructional objective (IO) which indicates the learner's terminal behavior. The learner may find the IO selected quite complex, and it may have to be subdivided into smaller, intermediate attainment steps. Many procedures can be used to determine these steps, but they all involve some form of task analysis. Instructional sequences generally are developed around these steps and are recorded either as a series of frames or phases. Once the sequence is established, its instructional variables must be determined. Construction of a cover sheet will assist other teachers in determining if a sequence is appropriate and/or feasible for their needs. (4 refs.)

Massachusetts Center for
Program Development and
Evaluation
Medford, Massachusetts

2459 **CLARK, E. AUDREY.** Teacher attitudes toward integration of children with handicaps. *Education and Training of the Mentally Retarded*, 11(4):333-335, 1976.

Attitudes will undoubtedly continue to change with experience, but it appears that major changes in teachers' attitudes toward integration of handicapped children occurred in the first year of a federally funded project at the Preschool Laboratory at California State University in Northridge. The project involved the integration of 3 mentally or physically handicapped preschoolers into a normal class of 16 children with a teaching team untrained in special education. Regrouping the children in vertical or family units facilitated appropriate curricular offerings in each classroom for all children. The large group activity often proved inappropriate for the handicapped children and was modified, and activity centers were found to afford an opportunity for each child to participate at his unique level. Resource people provided the regular staff with the facts that enabled the staff members to cope with the handicapped children on their own. An early attitude concerning integration was that it would be easier to accommodate the physically handicapped than the mentally handicapped. This attitude was revised as the program moved forward in recognition that the category of handicap is not as important as the degree of involvement.

Preschool Laboratory
California State University
Northridge, California

2460 **HORN, CHARLES J., JR.** Differentiation in special education. *Education and Training of the Mentally Retarded*, 11(4):335-336, 1976.

An era in the development of appropriate instructional programs for exceptional children is beginning that demands clear and consistent differentiation of processes and concepts which traditionally have been ignored or confused. First, the administrative process and the instructional process should be distinguished. Second, there must be clearer differentiation between the enacting process and the implementing process.

Enactment is an administrative act, whereas implementation is carried out in the instructional process. Third, the placement process must be recognized as an administrative exercise in geography and not an educational service. Fourth, procedural due process should be differentiated from substantive due process, the latter being achievable only through the implementation of an appropriate instructional program for each child. Fifth, the difference between abstractions and behaviors has to be recognized, and instruction must be provided which deals with specific behaviors. The sixth area is a need to differentiate the scholarship or academic function from the advocacy function, for advocacy is a social political tool and not a scholarly one.

Area of Special Education
University of Alabama
Tuscaloosa, Alabama

2461 **HORN, CHARLES J., JR.** Special education is square. *Education and Training of the Mentally Retarded*, 11(4):336-337, 1976.

Criticisms that special education is square go to the very essence of special education's positive contributions. Special education is square in the sense that a carpenter uses the term: as the square is the basic tool of measurement in carpentry, special educators also employ basic measurement tools in planning and developing instructional programs. Special education is square in the sense of regulating or adjusting to a standard, and it is square in the mathematical sense. As the town square often is a meeting place for the community, special education also provides a place where the total educational community can come to a meeting of the minds. Special education is square in the sense of being nutritious and providing well-planned and efficiently executed instructional programs for exceptional children. It is square in the financial sense, too, although it may be difficult to square the account in the instructional process by demonstrating that dollars invested actually resulted in an appropriate education for a particular child. Special education is square also in the artistic and geometric sense, in the moral sense of honesty, and in the uncompromising sense of placing responsibility.

Area of Special Education
University of Alabama
Tuscaloosa, Alabama

2462 **KOPLIK, KATHLEEN.** A survey of cooperative education programs between institutions of higher education and residential facilities for the mentally retarded. *Education and Training of the Mentally Retarded*, 11(4):347-351, 1976.

A 30-item questionnaire on cooperative educational programs and a 12-item attitude scale were mailed to the heads of education/special education departments at the 34 residential facilities for MRs and 37 colleges and universities in 7 Midwestern states. Replies to the questionnaire were received from 23 institutions and 26 colleges and universities. Slightly more than half reported maintaining some type of cooperative educational program with the education department of some facility for MRs, including institutional teacher training, student teacher training, utilization of consulting services and instructional materials, and the establishment of training programs for institutionalized MRs. Replies to the attitude scale, received from 23 institutions and 25 colleges and universities, suggested a serious lack of understanding between these two groups which may be preventing the best and fullest use of institutions as resources and training sites for special education students and potential teachers. Institutional educators indicated that they believe college and university educators view the institution as a training facility in a negative way, whereas college and university educators indicated that they do not so view institutions. (7 refs.)

Neurological Institute
Topeka, Kansas

2463 **NAZZARO, JEAN N.** Innovation in teacher training—a conversation with Melvyn I. Semmel. *Education and Training of the Mentally Retarded*, 11(4):352-360, 1976.

The whole area of teacher behavior and teacher education is an important field of research and development. What is needed is innovation that works. Research and development efforts at the Center for Innovation in Teaching the Handicapped (CITH) at Indiana University in Bloomington currently are moving on two separate fronts-noninteractive and interactive teaching skills projects. CITH has been examining the elements of both types of training in order to devise more effective methods of educating teachers, which should be validated ultimately by improvements in

the learning of handicapped children. The Instructional Development Laboratory, one of the Center's professional units, focuses primarily on the development of training materials and techniques related to the noninteractive aspects of teaching. In a second organizational unit, the Teacher Education Laboratory, an attempt is being made to merge development, research, and teacher education with demonstration and training. Efforts are also being made to provide training with reliable and rapid feedback with the Computer Assisted Teacher Training System. The Center clearly has demonstrated alternatives in teacher training through its products and technology. (2 refs.)

ERIC Clearinghouse on Handicapped
and Gifted Children
Box 190
Arlington, Virginia 22210

2464 **REYNOLDS, MAYNARD C.; & BIRCH, JACK W.** Mainstream education: focus on individualization. Columbus. Ohio: University Council for Educational Administration, 1977. 8 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135116.

In recent years judicial pronouncements and legislative acts have established the responsibility of schools to provide educational services for each child, preferably in the educational mainstream. In this paper a brief treatment of the history of the mainstreaming movement is offered, followed by a discussion of some of the shifts in concepts and new approaches that increase the capacity of schools to accommodate children who show a wide range of learning needs.

2465 Jacksonville State University. The Alabama Learning Resource Center—some perspectives. Frith, Greg; & Wells, Fred. Jacksonville, Alabama: Jacksonville State University, 1977. 10 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135381.

The Alabama Learning Resource Center's primary purpose is to keep special education personnel aware of current developments in instructional materials, media, and technology. Responses to a questionnaire developed and circulated to special education teachers, university chairmen of special education programs, and coordinators of special education are presented. Teachers furnished information on the names of the most used instructional materials by commercial name and by academic areas, their source of information for these materials, and the frequency of personal use of the Alabama Learning Resource Center. University chairmen responses included opinions on the adequacy of methods, courses to acquaint students with commercial aids, the geographic inaccessibility of learning centers for most students, and the frequent use of the Alabama Learning Resource Center as a major source of audiovisual aids. Responses from coordinators of special education indicated the need for a learning center to be available, the adequacy of instructional materials within a center, and the suggested percentage of budget that should be allocated to certain instructional materials. Some suggested that more services need to be offered to teachers, including training in the use of equipment and materials. Others suggested that funding priorities be diverted away from a centralized learning center and towards increasing accessibility of materials.

2466 **MILLER-JACOBS, SANDRA.** Open education for preschool special needs children. *Resources in Education (ERIC)*, 12(7):117, 1977. 76 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $4.67, plus postage. Order No. ED135451.

Open education, preschool education, and special education are defined and the philosophy behind merging these 3 approaches discussed to indicate that each has unique contributions to make to the education of the young child with special needs. Each approach is concerned with fostering cognitive, affective, and psycho-motor development, a positive self-concept, independence, and self-motivation. Implications for teacher education and competencies needed by teachers in a merged program are discussed. Appended are sections on themes and assumptions underlying open education; pedagogical characteristics of open education teachers at the primary level; goals of open,

preschool, and special education; play and young children with special needs; competencies developed by the Massachusetts Early Education Council; competency areas for the generic special educator; and Child Development Associate (CDA) competencies.

2467 **OPDAHL, CHRIS A.; & WHITHEAD, JAYNE S.** Teaching dressing skills to a blind multihandicapped six year old. *Resources in Education (ERIC)*, 12(7):80, 1977. 25 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135190.

A 6-year-old blind, nonverbal, severely MR boy was taught by means of a backward training procedure to dress himself. Three types of procedures were used by trainers: no help, verbal instructions, and physical guidance and instructions. The procedure was successful in teaching the necessary dressing skills: generalization of skills occurred, and follow-up data showed that they were maintained.

2468 Georgia State University. *A Practicum-Based Teacher Training Program for Preschool Handicapped Children. Final Report.* Colarusso, Ronald P. Atlanta, Georgia: School of Education, 1975. 128 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $7.35, plus postage. Order No. ED135191.

The final report on a 3-year project which prepared 25 teachers at Master's degree level in a practicum-based teacher training program for preschool handicapped children is discussed. The program's objective of developing effective teachers able to cope with behavioral and educational problems irrespective of purported etiologies or administrative placements is stressed, along with the integration of course work and field experience and training in assessing relevant psychoeducational behavior and devising appropriate remedial interventions. The report includes descriptions of the background of the study; methods, with information on such aspects as the trainees, the resource room model, and program implementation strategies; trainee evaluation; program evaluation; effect of program on public schools; and child progress. Evaluation data of students at the end of the program and 1 year later indicate a very favorable outcome. Appended information includes various forms used during the program.

2469 A study of the students and programs supported by General Fund Grants to school districts for the special education of handicapped children. Summary report. Portland, Oregon: Arthur Young and Co., 1976. 18 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135179.

The summary report of an Oregon study (for the 1975-1977 biennium) to determine existing funding patterns for the State special education programs and to suggest 2 alternative formulas for State reimbursement of school district expenditures for handicapped children is presented. Legal definitions and legislative bills are cited, with emphasis on Senate Bill 157, which combined previous statutes and provided a reimbursement formula not necessarily based on a specific handicap. Findings emphasize that a clear statement of the purpose and objectives of State grants is lacking, and that clarification is needed as to what costs are reimbursable. The report recommends that priority be given to identifying objectives of State financial participation and deciding whether to develop a procedure for auditing reimbursement claims or to abandon a funding policy based upon actual costs. The 2 alternative reimbursement formulas are described in the complete report.

2470 *A Study of the Students and Programs Supported by General Fund Grants to School Districts for the Special Education of Handicapped Children. Final Report.* Portland, Oregon: Arthur Young and Co., 1976. 143 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $7.35, plus postage. Order No. ED135180.

The final report of an Oregon study (for the 1975-1977 biennium) to determine existing

funding patterns for state special education programs and to suggest alternative formulas for state reimbursement of school district expenditures for handicapped children is presented. The following study recommendations are discussed: the need to develop a procedure for auditing reimbursement claims, the need to adopt a cost concept and measurement technique which provides a more meaningful estimate of the excess cost of educating handicapped children, the need to identify purposes and objectives of state financial aid, and the development of financial and statistical record-keeping procedures. Proposed are 2 alternative reimbursement formulas to replace the current formula, one of which is an excess cost approach, while the second approach (which is advocated) is based on actual costs incurred, assuming that controls for reporting costs are established. A series of tables covers the financial and statistical data on which the recommendations are based: cost by type of handicap, costs for selected cost categories, costs and daily class hours per teacher by type of program, sources of funds, number of pupils and teachers by type of handicap, and regular program data. Appended information includes forms for such calculations as claiming reimbursement for the education of handicapped children and determining indirect cost per pupil.

2471 H.R. 585: A bill to amend the Internal Revenue Code of 1954 to permit a taxpayer to deduct certain expenses paid by him for special education furnished to a child or other minor dependent who is physically or mentally handicapped. 95th Congress, 1st Session, January 4, 1977. *Resources in Education (ERIC)*, 12(7):78, 1977. 6 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135178.

The text of H.R. 585, a bill introduced by Representative Quie which would permit a taxpayer to deduct certain special education costs of handicapped minors, is presented. Specified in the bill are that tuition, required fees and charges, books, materials, supplies, equipment, and special devices would be among the allowable deductions.

2472 Toronto. Board of Education. A follow-up study of graduates of the perceptual and behavioral special classes. Gershman, Janis. Toronto, Ontario: Research Department, 1976. 38 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED135169.

The success of 2 special programs for elementary level students who were identified as having learning disabilities presumed to be organic, or whose learning disabilities were primarily emotional or behavioral in origin, was investigated with a follow-up study of successful reintegration into regular classes in the Toronto system. The initial sample of 295 students who entered either program in 1970 or 1971 was followed up by tracing the educational path of the students from 1971 to September, 1975. About half of the students still remaining in the Toronto system had been reintegrated into regular programs by 1975. Examined were the effect on later placement of age on entry to the program, sex, and length of time in the program. Further examination of students who were found in regular programs in January, 1976, was conducted by collecting and comparing teacher ratings for those students and 2 matched groups. Ratings were generally similar for the target group and the group matched on age (generally overage for grade), although they were lower for the target group than for a random group of class peers, especially in areas related directly to the problems which warranted their former special class placement.

2473 **KOTIN, LAWRENCE.** Due process in special education: legal perspectives-the state of the states, P.L. 94-142 and systems designs. Boston, Massachusetts: Massachusetts Center for Public Interest Law, 1976. 42 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED135166.

This article elaborates on the due process requirements which the states have incorporated into their special education systems, discusses the due process requirements in the Education of All Handicapped Children Act (P.L. 94-142), relates these requirements to what the states have already done, and reflects upon some of the issues involved in designing a due process system which

satisfies federal requirements and is educationally sound. Conclusions suggest that no due process system will work unless the individuals who design and operate it are committed to the basic concept of the desirability of involving the parent and child in the decision-making process.

2474 **VAN OSDOL, BOB M.** Adler's "individual psychology." *Australian Journal of Mental Retardation*, 4(5):28-30, 1977.

Some of the foundations of the prevailing concern for the individual within the traditional structure of the educational process come from Adler's theory of individual psychology. The crux of individual psychology is the belief that man is more motivated by social factors than by biologic ones. The 8 bases of Adler's theory are the principles of man's uniqueness, man's conscious self, fictional goal/finalism, the neonate's inferiority, the striving for superiority, the style of life, the creative self, and social interest. Adlerian concepts provide the teacher of MRs with an outline of the functioning man-in-society and provide for the MR within that structure. Adler's two basic tenets of operating with an individual were first to discover/gently dig out the individual's goals and to stress that individual's uniqueness. If the individual's behavior were maladjusted, or in any way dysfunctional, Adler would try to substitute appropriate goals. Analysis of the remaining principles provides a further frame of reference for the teacher of MRs. (8-item bibliog.)

2475 **WILTON, KERI M.; & COSSON, LEYLAND D.** Employment and adjustment of special class graduates in a New Zealand City. *Australian Journal of Mental Retardation*, 4(5):3-7, 1977.

The employment status and social adjustment of three groups of mildly MR adults, each of which had experienced a different special educational strategy prior to graduation, was compared with that of a group of 20 adults who had been classified at secondary school as slow-learners. MR Ss were 20 graduates of work experience classes, 20 individuals who had attended intermediate special classes and subsequently regular high school classes, and 20 who had completed their schooling at intermediate special classes. All Ss were interviewed, and employment data and community adjustment data were collected. The dependent variable measures were analyzed using planned (one-tailed) comparisons between the slow-learners and the combined MR groups, two-way analyses of variance to examine sex and group differences, and the Newman-Keuls procedure for subsequent group comparisons. The mildly MR groups were less well off than the slow-learners in terms of both employment and social adjustment. Their poorer achievement appeared to be virtually independent of the types of special educational intervention they had experienced. (10 refs.)

Department of Education
University of Canterbury
Christchurch 1, New Zealand

2476 **BAINE, DAVID.** Criterion referenced testing and instruction. In: Das, J. P.; & Baine, D., eds. *Mental Retardation for Special Educators*. Springfield, Illinois: Charles C Thomas, 1978, Chapter 10, p. 203-226.

Traditionally, norm referenced testing has been used to describe a student's performance, but there are severe limitations inherent in this approach which may be overcome by using criterion referenced tests and instructions. Particular difficulties arise when children in individualized or special education programs are given a test designed for the average national classroom. Developmental tests often evoke the concept of readiness. Too often, teachers wait for biological maturation to take place before they begin to teach a new skill, and the MR child falls even further behind his or her peers of chronological age. In the traditional approach, teaching and testing are often considered to be separate activities, and inefficiency results. When criterion referenced tests and instructions are used by classroom teachers, many of these problems can be overcome. The steps in the development of a criterion referenced testing and instructional sequence include the statement of a goal, its translation into a tentative instructional objective, review of the literature and performance, component and task analysis, and construction and validation of the sequence. (12-item bibliog.)

Learning and Development Clinic
University of Alberta
Edmonton, Alberta, Canada

2477 **BANK, CARYL L.; FEINGOLD, BARBARA A.; & GENN, BRENDA D.** A model eclectic program for the education of young developmentally disabled children. In: Feingold, B. A.; & Bank, C. L., eds. *Developmental Disabilities of Early Childhood.* Springfield, Illinois: Charles C Thomas, 1978, Chapter 2, p. 8-14.

Little Village School for Developmentally Disabled Children in Merrick, New York, is a structured therapeutic day school for children aged 2.5 to 10 years who have been diagnosed as MR, emotionally disturbed, neurologically impaired, minimally brain damaged, or multiply handicapped. A nonprofit, nondiscriminatory school chartered by the New York State Board of Regents, it was the first educational facility in Nassau County to group and educate children deliberately according to their developmental levels rather than their diagnostic categories. This innovative approach to grouping de-emphasized the labeling of children and focused upon their functioning. Parent education and involvement are vital aspects of the Little Village philosophy. The communication between home and school is accomplished through the provision of ongoing workshops, group meetings, counseling, and a general open-door policy. Little Village School uses a special curriculum designed specifically to meet the needs of developmentally disabled youngsters. The first few weeks of each school year are spent assessing and evaluating every child's developmental level, and the resulting abilities profiles are used in planning individual and group goals.

Little Village School
Merrick, New York

2478 **LAZARUS, PHOEBE.** The value of resource rooms and itinerant teaching: a place on the continuum. In: Feingold, B. A.; & Banks, C. L., eds. *Developmental Disabilities of Early Childhood.* Springfield, Illinois: Charles C Thomas, 1978, Chapter 5, p. 47-58.

Itinerant and resource teachers, relative latecomers to special education, have demonstrated great potential for effective support of the handicapped learner and for enhancement of regular class teaching skills. It was only 30 years ago that itinerant teaching for visually and hearing handicapped children created a breakthrough as a successful alternative to special schools and special classes. In New York State, itinerant teaching for other than the sensorially impaired was first attempted in 1960. By the late 1960's, with mainstreaming emerging as a strong force in public education, resource teachers were introduced in many flexible service-delivery options. They frequently assumed roles of direct service to children, and they also provided indirect services as consultants to other school personnel. At present, resource rooms seem to be the most widely accepted supportive service format. They have demonstrated their flexibility with regard to student age, level, and type of educational need. Direct service may be supplied to 15 to 20 children requiring intensive individual intervention, and indirect service can be provided to many students through demonstration and consultation with regular classroom teachers. (10 refs.)

Board of Cooperative Educational Services
Nassau County, New York

2479 **INGALLS, ROBERT P.** Education of the mildly retarded child. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook.* New York, New York: John Wiley & Sons, 1978, Chapter 14, p. 339-376.

In recent years, there has been a shift in the philosophy of special education for EMR children away from the self-contained special class and towards integrating EMR students into regular classes for as much of the day as possible, a process called mainstreaming. In a regular classroom, MRs will fall continually farther behind their peers of chronological age, and they will receive less special attention. However, education in the mainstream is much more likely to be individualized, and children here are more likely to be challenged. The principal alternative to the self-contained special class is the resource room. Another arrangement is an itinerant teacher who does little actual teaching but consults with regular classroom teachers on the particular problems presented by EMR students. A large number of different approaches to teaching EMR children has been proposed, including the physiological method of Seguin, Montessori's autoeducational system, Piaget's approach, the unit method of Ingram, the modified traditional curriculum, and perceptual-motor training. The most recent innovation in

special education is an approach called clinical teaching; a related process is task analysis. (73 refs.)

2480 INGALLS, ROBERT P. Education of the moderately or severely retarded child. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook*. New York, New York: John Wiley & Sons, 1978, Chapter 15, p. 379-389.

The fastest growing area of special education today is that of special training for children with IQs below 50, children who have been referred to traditionally as TMRs or custodial MRs. Until recently, such children were excluded routinely from public schools, but several court decisions and some recent legislation have affirmed even their right to a full range of educational services. The traditional approach used to teach these children has been relatively unstructured, with an emphasis on general enrichment. Since this method was not particularly successful, there has been a gradual shift towards an increasing focus on systematic, individualized instruction, generally from a behavioral point of view. What is to be taught is specified clearly in behavioral terms, reinforcements are dispensed systematically to maximize learning, and the various skills to be taught are broken down systematically into subskills, which are taught sequentially. In the curriculum for moderately MR, SMR, and PMR children, there is less emphasis on academic skills and greater stress on the activities of daily living, gross motor skills, self-care skills, basic language skills, and instruction in basic concepts. (20 refs.)

2481 INGALLS, ROBERT P. Preschool programs for the retarded. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook*. New York, New York: John Wiley & Sons, 1978, Chapter 16, p. 391-401.

Recent research with infants and young children has indicated the importance of the first few years of life in determining the overall course of development of the child, and preschool programs for children considered to be at risk for developing learning problems in the school years are proliferating as a result. The assumption underlying such programs is that it is easier to prevent developmental disabilities than it is to try to treat them once they have developed. Many of the early preschool programs for these children were funded by the Head Start program and used a variety of teaching methods. The early Head Start programs were not as successful as their backers had hoped. Overall analysis showed that the more successful programs among them were those which were highly structured and which stressed cognitive and academic skills. The Milwaukee Project, which provided low-income black children with an intensive training program outside the home starting shortly after birth, has been much more successful than most other compensatory programs. Still other preschool programs are aimed mainly at children who have already been diagnosed as handicapped. (11 refs.)

2482 CLELAND, CHARLES CARR. The public schools and mental retardation. In: Cleland, C. C. *Mental Retardation: A Developmental Approach*. Englewood Cliffs, New Jersey: Prentice-Hall, 1978, Chapter 11, p. 249-268.

The public schools' role in serving all the handicapped in a wide range of chronological ages has changed dramatically since the first special class opened in the United States in 1896. In general, there has been an enormous expansion of the schools' service to all children, with the public schools' mission for normals and, more recently, MRs now approaching the cradle-to-grave concept. Over the past decade and particularly in the first half of the 1970s, litigation has created some new educational challenges. Not only has the schools' responsibility been broadened to include a wider range of MRs, but they now have been mandated to serve a wider ability level of MRs. Voting rights, the right to marry and have children, and other rights dictated by the court decisions of recent years are altering the curriculum to a certain extent. Some residential institutions experimented with such issues as sex education for EMRs as long ago as 30 years, and extramural care or rehabilitation training was instituted at the Rome State School in New York more than 60 years ago. Now, however, the public schools face a mandate of ensuring such rights, and more systematic and directed instruction seems warranted. (34 refs.)

University of Texas
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2483 LUCKEY, ROBERT E.; & ADDISON, MAX. The profoundly retarded: a new challenge for public education. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 1, p. 11-25.

The movement towards the inclusion of PMR students in the public schools will necessitate a revision in traditional definitions of education and the incorporation of new training techniques within a longitudinal educational plan. Systematic training should begin early in the lives of PMR children. Improved head balance and trunk control have been accomplished in a number of ways, including systematic mat play or exercise and through the use of sitting position supports. The design of the school environment should not be prohibitive to independent ambulation and other forms of locomotion. PMR students also must be involved in various sensorimotor activities. Normal risk taking, too, is essential to their development. Positive reinforcement has been shown to facilitate the development of many functional skills, whereas negative or aversive reinforcement has proved useful to decelerate undesirable behaviors. The design of training programs must take into consideration the long-term training needs of the PMR throughout the life cycle. (95 refs.)

2484 FROSTIG, MARIANNE. *Education for Dignity*. New York, New York: Grune & Stratton, 1976, 208 p. (Price unknown.)

The philosophy and realistic means of translating into practice the teaching-learning transactions which will have an impact on every child, including those with special needs, exposed to the educational process are presented. Various theories of education are reviewed, and promotion of behavioral changes through the classroom structure and individualized programing of special children are discussed.

CONTENTS: The Purposes of Education; The Problems of Education in Our Time; The Problem of the Child with Special Instructional Needs; The Nurturing Role of the School; Alternative Educational Approaches; Two Examples of Innovative Programs; Evaluation and the Developmental Sequence; Assessment of Basic Abilities; Examples of Individualized Programing; The Theories of Skinner and Piaget; The Role of the School in Moral Education.

2485 FROSTIG, MARIANNE. The purposes of education. In: Frostig, M. *Education for Dignity*. New York, New York: Grune & Stratton, 1976, Chapter 1, p. 5-16.

Educational scope and content change as cultures change, but the most important goals of education have remained constant throughout human history because they satisfy essential human needs. The primary goal of any culture is its survival, and education must ensure that members of a culture know how to procure the necessities for living, how to defend themselves against natural enemies, and how to live together peacefully. The second main purpose of education is the teaching of skills and knowledge which help to make life more secure, more comfortable, and more satisfying, a goal which stems from man's organic functions. Additional major educational goals stem from the refinement of man's representational functions and from his ability to use imagery and language to represent events, to form concepts, to formulate ideals, and to perceive relationships not present to his senses. Education must concern itself with the development of these characteristics because they are necessary for exploration, creativity, self-realization, and interpersonal relationships and group integration. (12 refs.)

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2486 FROSTIG, MARIANNE. The problems of education in our time. In: Frostig, M. *Education for Dignity*. New York, New York: Grune & Stratton, 1976, Chapter 2, p. 17-23.

Education must exercise a nurturing as well as a teaching role. Unfortunately, a visitor to school classrooms in most countries is likely to find all children being taught the same things in the same way. Such uniformity may be considered necessary for economic reasons or because it is mandated by departments or boards of education or by tradition. However, the imposition of educational conformity harms not only the less able child, who may give up and view himself or herself as an utter failure, but also the gifted child, who may become bored and disruptive. Neither the nurturing nor the teaching roles can be exercised if the child is not regarded as being a member of a community as well as an individual.

Education is always influenced by the culture and by the totality of living conditions. A particular need or group of needs may be of critical educational concern because of the socioeconomic condition of a country or region at a given point in time. The literacy rate is rising, and there is a gradual broadening of exposure to education. These trends, though admirable, present education with further problems, however. (6 refs.)

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2487 FROSTIG, MARIANNE. The problem of the child with special instructional needs. In: Frostig, M. *Education for Dignity*. New York, New York: Grune & Stratton, 1976, Chapter 3, p. 24-33.

Children with special instructional needs comprise a sizable part of the school population of all countries with compulsory school attendance, and they have been the focus of increasing attention. In the United States, one basic instructional approach is to provide special tutoring and remedial procedures for short daily periods for a child who remains in the regular classroom, while the other approach is based upon a medical model, with classificatory diagnosis followed by segregation into special classrooms or schools. The second approach has been the usual procedure, but there is now a welcome movement in many school districts to integrate special children into regular classes. The model developed for children with special instructional needs by the Los Angeles (California) Department of Special Education allows an unusual degree of flexibility in integrating these children into the school population and providing for their educational needs. Diverse new programs are emerging in general education, but strong forces still delay the necessary changes in education in many countries. (12 refs.)

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2488 FROSTIG, MARIANNE. The nurturing role of the school. In: Frostig, M. *Education for Dignity*. New York, New York: Grune & Stratton, 1976, Chapter 4, p. 39-48.

The anxieties and deprivations which so many children experience today make the nurturing role of the school essential if the children are to grow into self-fulfilled adults. Classroom organization must meet the children's needs for self-initiated activities and communication. The physical environment should be warm and attractive. Fortunately, there are teachers who can do wonders and provide a beautiful and stimulating environment with a small budget and in relatively old and dilapidated buildings. Teaching methods and classroom management procedures should focus on individual needs. In every aspect of education, careful individualization is necessary in order to eliminate, or at least to diminish, difficulties and to help children realize their full potential. The teacher's counseling role is vital to helping children express their feelings and to helping both children and their parents find solutions to their problems. At the same time, mutually supportive school and community relationships enable school personnel and parents to focus on each child's total well-being. (10 refs.)

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2489 FROSTIG, MARIANNE. Alternative educational approaches. In: Frostig, M. *Education for Dignity*. New York, New York: Grune & Stratton, 1976, Chapter 5, p. 49-58.

The study of innovative educational programs of all countries will enrich every teacher's repertoire of strategies and his or her understanding of the goals of education as they relate to different cultures. Although social conditions and political convictions may differ from country to country, much of what is being done educationally in England, the Soviet Union, China, and Israel, in particular, can be adapted in the United States and elsewhere. In this country, the rising demands in the 1960's for social and racial justice were reflected in education's concern for compensatory and early childhood education. Head Start programs proliferated. When followup studies began to indicate that gains made by the

4-year-olds in these programs were being lost as they progressed through kindergarten and the primary grades, however, Project Follow-Through was instituted, with federal funding, to serve the same populations served by Head Start. This Project and the open classroom represent examples of innovative educational programs which are offered in the United States. (16 refs.)

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Los Angeles, California

2490 FROSTIG, MARIANNE. Two examples of innovative programs. In: Frostig, M. *Education for Dignity*. New York, New York: Grune & Stratton, 1976, Chapter 6, p. 59-81.

The Hartford (Connecticut) open education program and the Compton (California) project are two innovative programs conducted in the United States. The Hartford program is one of the most exciting, significant, and perhaps underrated programs of its kind. It is a working model of American urban child centered or informal education succeeding on a scale which is rare both in England and this country. Ten thousand children, 350 classrooms, and more than 1,000 teachers and aides have been involved since the program's inception 6 years ago. The program is not an unequivocal success, but open education is flourishing nevertheless in Hartford. The Compton project is an example of a readiness program designed to enhance the abilities of economically disadvantaged and culturally different children during their early school years. A more limited undertaking with more restricted goals, it has illustrated how relatively small changes in teacher training and perceptions produced great differences in the lives of a predominantly black kindergarten population. (7 refs.)

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2491 FROSTIG, MARIANNE. Evaluation and the developmental sequence. In: Frostig, M. *Education for Dignity*. New York, New York: Grune & Stratton, 1976, Chapter 7, p. 87-98.

The developmental sequence can provide the framework for defining broad areas of abilities which are necessary for a child in order to function optimally in regard to school learning. During the first 18 months of life, called the sensorimotor period by Piaget and the enactive period by Bruner, the child learns to orient himself in the world. From approximately 18 months to 2 years to about 3.5 or 4 years of age, language develops maximally. During the next phase, which lasts from about 3.5 or 4 years to about 7 years of age, the child learns many perceptual tasks. During the latter part of the preoperational stage, the child's ability to integrate the perceptions of the various senses develops maximally. The last distinct stage of development, the phase of higher cognitive functions, begins at approximately 7 years of age and continues on into adulthood. The teacher should always take note of behavior which suggests emotional problems or social immaturity, since it may be related to disabilities in developmental skills. (26 refs.)

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2492 FROSTIG, MARIANNE. Assessment of basic abilities. In: Frostig, M. *Education for Dignity*. New York, New York: Grune & Stratton, 1976, Chapter 8, p. 99-124.

Assessment of a child's basic abilities is the indispensable first step in constructing an educational program which will help the child to develop all his or her psychological functions and to achieve academically. The developmental sequence, tracing progress through the sensorimotor, preconceptual, intuitive thought, concrete operations, and formal operations stages, can serve as the evaluative framework to ensure that assessment of abilities is relatively complete, balanced, and integrated. Both standardized tests and ongoing teacher observations are needed to pinpoint each child's specific strengths and weaknesses. The Frostig Movement Skills Test Battery, the Marianne Frostig Developmental Test of Visual Perception, the Wepman Test of Auditory Discrimination, the Illinois Test of Psycholinguistic Abilities, and the Wechsler Intelligence Scale for Children constitute the basic test battery given by the Marianne Frostig Center of Educational Therapy to all children referred because of learning difficulties. (38 refs.)

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2493 **FROSTIG, MARIANNE.** Examples of individualized programing. In: Frostig, M. *Education for Dignity*. New York, New York: Grune & Stratton, 1976, Chapter 9, p. 125-158.

Individualized programs are based upon the knowledge gained about the child through testing, observations made by the teacher, and parent interviews. Testing is a valuable part of the diagnostic procedure only if it is followed by a prescription of teaching methods and remedial procedures and only if the child's physical development, life space, and interactions with the environment, past and present, are also taken into account. Initial observation is indispensable, since it constitutes an essential element in the diagnostic process and can also be used therapeutically to correct disabilities and to increase the child's confidence in his or her new program. Some children can be helped optimally only if a complete evaluation is made, even if these children seem to have only delimited problems. In cases of children with several problems, the relative importance of these difficulties must be weighed in deciding the priorities and emphases of training. Classroom structure can be changed to take the observed needs of children into account. (11 refs.)

Marianne Frostig Center of
Educational Therapy
Mount St. Mary's College
Los Angeles, California

2494 **FROSTIG, MARIANNE.** The theories of Skinner and Piaget. In: Frostig, M. *Education for Dignity*. New York, New York: Grune & Stratton, 1976, Chapter 10, p. 163-181.

The research of both Piaget and Skinner suggests methods which can be applied in the classroom. Many of the suggestions can be combined, but there are also unbridgeable chasms between important aspects of their theories and models. Skinner has devoted himself to the development and refinement of a systematic application of techniques of behavior modification, derived from his research with animals. Piaget's contributions have provided the educator with new insights in regard to the development of cognition and its possible enhancement, and he also has studied the development of morality. Piaget believes in the child's intrinsic joy in learning, and Skinner in extrinsic motivation. Skinner's "happy person of the future" is a passive follower, while Piaget's is an active, exploring, creating human being. Skinner's ideas can contribute to education, but they are not new. Similarly, Piaget's ideas are anchored in the past. The history of education is replete with forgotten and neglected teachings of great educators. In a sense, barriers to achieving a new ethics are the result of inadequate teacher education. (26 refs.)

Marianne Frostig Center of
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Mount St. Mary's College
Los Angeles, California

2495 **FROSTIG, MARIANNE.** The role of the school in moral education. In: Frostig, M. *Education for Dignity*. New York, New York: Grune & Stratton, 1976, Chapter 11, p. 182-197.

With the potentiality for both the good and evil of technology increasing, a stronger and deeper commitment to moral principles is needed, and it is the school which should be in the forefront in bringing about this commitment. The first step the teacher must take is to make a conscious, explicit, strong commitment to influence the moral standards of the children in his or her care. The second step is to become aware of what such an undertaking involves. Moral judgment and behavior require the interrelationship of both cognitive and affective factors. The vehicles for moral education in the classroom are the curriculum and techniques of classroom management. The cooperation of society in reaching ethical goals is indispensable in a democracy, especially in one in which the population is so highly diversified as it is in the United States. Educators must become more keenly aware of inadequacies and dysfunctioning in the social system and must develop their own social conscience as well as the awareness and social conscience of the children and of society as a whole. (29 refs.)

Marianne Frostig Center of
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Mount St. Mary's College
Los Angeles, California

2496 New York City Board of Education. *The Cost of Educating Handicapped Pupils in New York City. Special Report No. 2 in a Series: Assuring Equal Educational Opportunity for Handicapped Children in New York City.* Brooklyn, New York: New York Office of the Deputy Chancellor, 1977. 116 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $6.01, plus postage. Order No. ED137994.

The results of a study conducted to determine the cost of educating handicapped pupils in New York City's public school are reported. Student enrollment is described in terms of the programs and bureaus operated by the Division of Special Education and Pupil Personnel Services (DSEPPS) and aspects of student enrollment are discussed, including explanations of severity of handicapped type and whether pupils are receiving full-time or part-time services. Components of special education program costs are delineated and the methodology employed to calculate actual costs is explained. Total dollar costs and cost per pupil in each DSEPPS program are included. Preliminary analyses presented include comparison of actual costs with estimated costs, interprogram comparisons, comparison of private versus public school special education costs, and discussion of the relative costs of New York City special education programs.

2497 **RONAYNE, ANN M., (Comp.); et al.** *Special Techniques for Teaching the Severely Profoundly Retarded.* Pittsburgh, Pennsylvania: Allegheny Intermediate Unit, 1976. 357 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $19.41, plus postage. Order No. ED137996.

A text intended for teachers of SMR and PMR children presents guidelines for designing individualized programs for these children and specific teaching techniques which have been found to be successful with children having a mental age of from 0 to 36 months. The introduction defines SMR and PMR and includes a list of characteristics of the population. A section on systems approach covers definitions of program areas, initial preparation for programming and scheduling (including descriptions of equipment needed), home follow-up, and components of the educational program. Specific teaching techniques are described in sections on gross motor skills, body image, fine motor skills, auditory training, visual skill development, activities of daily living, personal-social skills, and communication skills. A separate page is devoted to each specific task, and includes general objective, materials, task, rationale, adaptations, and procedures. A special "card system" for tracking individualized program objectives and tasks is also described.

2498 **WENER, ALBERT.** Delivery of educational services for the learning disabled: a systematic approach. 33 p. *Resources in Education (ERIC)*, 12(7):74, 1977. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED135139.

For many types of learning disabled students, integration with regular class students is desirable, and a comprehensive analysis of the educational service delivery system is needed to achieve this goal. The disadvantages of the special class arrangement in terms of cost benefit, psychological growth of the separated student, and social experiences of the regular student are described. Necessary changes in the regular education system are examined in terms of 6 considerations: the regular classroom teacher's training and expertise; the pupil-teacher ratio; the degree to which individualized instruction is promoted; the degree of student independence; the organizational and policy issues affecting classroom practices; and the overall goals of the educational system. An intervention model based on a systems analysis approach is presented.

2499 **MESSERSCHMIDT, DALE H.** Industrial arts in special education. *Resources in Education (ERIC)*, 12(6):8, 1977. 13 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No.ED133439.

The problem of teaching industrial arts to students with special educational needs, including handicaps of MR, sight, hearing, neurologic manifestations, orthopedic problems, gross motor problems, learning disabilities, emotional disturbances, and multiple handicaps is discussed. Included are discussions on the prevocational industrial arts program in which the author is involved; individual problems concerned with students' academic, social, emotional, and physical handicaps; demonstrated methods of handling such problems; usual industrial arts activities; and comparison of special education achievement with normal classroom achievement. Suggestions are included for choosing projects, planning activities, selecting materials, selecting and using tools, sequencing tasks, and eliciting student cooperation. The fiscal and administrative support for the program and program evaluation are briefly described.

2500 California. Education Department. Interpretive study: mainstreaming vocational education for the handicapped in California secondary schools. Final Report. Johnson, Gordon F.; & Reilly, Rob. Los Angeles, California, 1976. 83 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $4.67, plus postage. Order No. ED133491.

Phase 4 of an interpretive study of mainstreaming guidelines and practices designed to improve the vocational education opportunities for handicapped persons in California secondary schools, presents findings, recommendations, conclusions, and project materials. Objectives of the study were to develop guidelines for establishing mainstreaming opportunities in vocational education for the handicapped; identify characteristics and provisions of vocational programs that are mainstreaming the handicapped; and provide a step-by-step procedural manual for mainstreaming handicapped in vocational programs, providing pertinent information for field practitioners. The official starting date for the project was July 1, 1975. Phase I consisted of research into the development of mainstreaming guidelines and criteria in accordance with Federal and State plans and directives; Phase II involved the development of guidelines and the structured interview/-questionnaire; Phase III involved the selection of representative local education agencies by the Project Advisory Committee for inclusion in the study; Phase IV involved on-site interviews conducted with representatives from each of the participating local education agencies during February through May 1976.

2501 **JONES, REGINALD L., ed.** *Mainstreaming and the Minority Child*. Minneapolis, Minnesota: Leadership Training Institute for Special Education, 1976. 307 p. Available from CEC Information Services and Publications, 1920 Association Drive, Reston, Virginia 22091. Price $5.00, Publication No. 146.

Sixteen papers dealing with the effect of mainstreaming on the minority child are divided into 5 sections: overview and perspectives, educational assessment for mainstream placement, curriculum issues and teaching strategies, evaluation and research, and case study and summary propositions. Chapters are "Mainstreaming and the Minority Child--An Overview of Issues and a Perspective" (R. Jones & F. Wilderson); "Legal Forces and Pressures" (A. Abeson); "Parents and the Mainstream" (K. Morton and K. Hull); "Desegregation and Mainstreaming--A Case of Deja Vu" (C. Oden): "Problems and Issues in Assessment of Minority Group Children" (H. Dent); "Mainstreaming Ethnically and Linguistically Different Children--An Exercise in Paradox or a New Approach?" (E. De Avila); "Curriculum Building and Implementation in Mainstream Settings--Some Concepts and Propositions" (M. Dabney); "Teaching the American Indian Child in Mainstream Settings" (F. Pepper); "Mainstreaming Black Children" (J. Johnson); "Cultural Democracy and the Educational Needs of Mexican American Children" (A. Castaneda); "Retarded Children Mainstreamed--Practices As They Affect Minority Group Children" (J. Gottlieb, et al); "The Decertification of Minority Group EMR Students in California--Student Achievement and Adjustment" (R. Yoshida, et al.); "Evaluating Mainstream Programs for Minority Children" (R. Jones); "Mainstreaming and the Minority Child--The Philadelphia Experience" (M. Young); and "Summary-Some Propositions" (R. Jones).

2502 Marian College. *Try These, We Have! Environmental Education Activities for the Trainable Mentally Retarded*. Benedict, Deborah; et al. Indianapolis, Indiana: Wetlands Ecological Laboratory, 1976. 143 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $7.35, plus postage. Order No. ED134434.

Out-of-classroom and in-classroom experiences emphasizing, language skills, number skills, social skills, motor skills, science, and attention span are described in these materials on environmental education for the TMR. Each of 8 coded topical areas--air, animals, games, light, plants, seasons, soil, and water--includes a variety of activities related to the general theme. Activities are described on separate cards for the teacher containing title, purpose, suggested directions, materials list, and hints and instructions for carrying them out. TMR students were chosen to test the materials.

2503 MCAFEE, ORALIE; & NEDLER, SHARI. Education for parenthood; a primary prevention strategy for child abuse and neglect. Report No. 93 from the ECS Child Abuse Project. Denver, Colorado: Education Commission of the States, 1976. 32 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED134580.

The importance of parent education as a strategy to prevent child abuse is emphasized, in the light of the many individual differences in the needs, strengths, and weaknesses related to effective child-rearing and parental competencies. Education of parents is designed to produce a primary concern for strengthening the family unit; public recognition of the complexity and importance of the parenting role to our present society; involvement of parents in specifying goals and objectives relevant to them and their children; development of materials directed to the social and emotional goals of children and parents as well as school-related goals and concerns; development of training programs for personnel working with families; and developing strategies to coordinate and utilize all existing delivery systems for parent education.

2504 Wisconsin. Madison Public Schools. *Madison's Alternative for Zero Exclusion: Papers and Programs Related to Public School Services for Secondary Age Severely Handicapped Students*. Volume VI, Part I. Brown, Lou, et al. Madison, Wisconsin: Department of Specialized Educational Services, 1976. 448 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $23.43, plus postage. Order No. ED132790.

Seven reports describe the instruction and services offered severely handicapped secondary school students in the Madison, Wisconsin, Metropolitan School Districts. Reports are titled as follows: "The Criterion of Ultimate Functioning and Public School Services for Severely Handicapped Students," "A Review of Secondary Level Educational Service Delivery Models for Severely Handicapped Students in the Madison Public Schools," "Teaching Selected Sex Education and Social Skills to Severely Handicapped Students," "A Job Skill Inventory Strategy for use in a Public School Vocational Training Program for Severely Handicapped Potential Workers," "Supermarket Shopping: Teaching Severely Handicapped Students to Generate a Shopping List and Make Purchases Functionally Linked with Meal Preparation," "Making Purchases: A Functional Money-use Program for Severely Handicapped Students," and "Teaching Severely Handicapped Students to Function as Dishwashers in Simulated and Natural Work Settings."

2505 North Carolina. Department of Public Instruction. *Career Opportunities: Teaching Children with Special Needs*. (Revised). Raleigh, North Carolina: Division for Exceptional Children, 1976. 66 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $3.50, plus postage. Order No. ED132789.

Career opportunities in special education in North Carolina are described in an illustrated brochure focusing on North Carolina Colleges and universities with professional training programs in special education. Information is given on the physically impaired, hearing impaired, speech/language impaired, visually impaired, learning disabled, emotionally handicapped, gifted and talented, and

mentally handicapped. Psychological services, services for the deaf-blind, the delivery system for state services, and regional services organization are all briefly discussed.

2506 JORDON, JUNE B., ed., et al. *Early Childhood Education for Exceptional Children: A Handbook of Ideas and Exemplary Practices*. Reston, Virginia: Council for Exceptional Children, 1977. 310 p. Available from CEC Information Services and Publications, The Council for Exceptional Children, 1920 Association Drive, Reston, Virginia 22091 ($10.00, Publication No. 148).

A review of pertinent legislation, descriptions of existing programs, and recommendations for establishing new programs in the field of education of young exceptional children are presented in a series of chapters by individual authors within a handbook for educators and researchers. Following are the chapter titles in the guide: "The Enabling Legislation: How Did It All Begin?," "Alternative Models for Delivering Services to Young Handicapped Children," "Identification, Screening, and Assessment," "Record Keeping," "Curriculum and Instruction," "Special Program Needs of the Culturally Diverse Child," "Physical Facilities and Environments," "Parent Involvement," "Multiple Staffing Patterns," and "Evaluation of Programs." An overview of education for handicapped children and a history of the Handicapped Children's Early Education Program, sometimes known as the First Chance Program, under the Bureau of Education for the Handicapped (BEH) are provided in an introductory chapter. A listing by state of BEH First Chance projects and another listing by title of standardized BEH First Chance tests are provided in appendixes.

2507 Pennsylvania. Department of Education. The concept of mainstreaming: a resource guide for regular classroom teachers. Grotsky, Jeffery, ed.; et al. Harrisburg, Pennsylvania: Department of Education, 1976. 33 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED132784.

A question-and-answer format is utilized in a guide for regular classroom teachers to inform them of the educational needs of exceptional children about to be mainstreamed into regular classes. Data presented as answers to 35 questions include the following topics: definition and purpose of mainstreaming, developing programs of instruction for students, methods of coping with social problems, referral procedures, treatment of students with medication, identification and help for students with motor difficulties, auditory and visual perceptual problems, ideas for establishing a mathematics program, criterion- or concept-referenced tests for mathematical diagnosis that are commercially available, and the parent-teacher relationship. Parent counseling recommendations as well as information outlines on visual and auditory perception, perceptual integration, language, and gross and fine motor skills are also provided.

2508 Pennsylvania. Department of Education. *Special Education Quality Cost-Effectiveness Study*. Hayes, Robert B. Harrisburg, Pennsylvania: Bureau of Information Systems, 1976. 74 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $3.50, plus postage. Order No. ED132770.

An investigation of the quality cost-effectiveness of elementary and secondary special education programs in Pennsylvania showed that exceptional children were making significant progress in basic skills and social maturity within a special education program of generally good quality. Special education costs, varying considerably within each program category, did not consistently correlate with the quality of instruction or with achievement gains, although some connection was detectable. A random sample of classes was investigated in each of the 5 categories of exceptionality--EMR, TMR, socially and emotionally disturbed, brain injured, and physically handicapped. Fifteen figures and 30 tables present findings in terms of inputs, outputs, costs, and the relationships among inputs, outputs, and costs.

2509 **BURGER, ROBERT M., et al.** A model for T.M.R. employment: final, two-year report, September 1, 1974 to June 30, 1976. Blue Bell, Pennsylvania: Montgomery County Intermediate Unit 23, 1976. 136 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $7.35, plus postage. Order No. ED132769.

The final report is presented of a 2-year project to provide a model for inservice training of school personnel involved in the vocational education and placement of TMR students in Pennsylvania. Project activities consisted of literature review, devising task analysis training techniques, writing a procedural manual and a job placement guidebook, establishing inservice training procedures, and publicizing training techniques. The latter included presentations at meetings of professional groups, distribution of monographs of the curriculum to appropriate Pennsylvania agencies, and dissemination of sound slides and a sound movie showing examples of training techniques and task analysis. The program was evaluated by locally constructed questionnaires and on-site visits by selected experts. Two major curriculum guides, entitled "Preacademic Skills" and "Prevocational Skills," were produced as Volumes 6 and 7 of the series "Training for Independence." Other information disseminated through professional agencies included criterion referenced measurement models, task analysis techniques, and methods-time-measurement procedures.

2510 Michigan State University. An evaluation of mainstreaming in vocational education programs in the state of Michigan. Manzitti, Edward T., et al. East Lansing, Michigan: College of Education, 1976. 22 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED132767.

Findings are reported from a survey of 116 Coordinators of Special Needs Projects in Michigan to determine the effectiveness of mainstreaming handicapped children in vocational education programs. Findings indicated that: (1) EMR students were mainstreamed at the highest number of locations, while the emotionally impaired were the least mainstreamed; (2) Most of the regular classroom teachers had undergone some training to enable them to cope with handicapped students; (3) Regular teachers and parents of normal children tend to be least supportive of mainstreaming; and parents of handicapped children and special education staff generally are the most supportive. Other purposes included the securing of data on the institutions, types of programs, support systems, numbers and types of handicapped students being mainstreamed, and problems encountered in implementing mainstreaming.

2511 **KRISTAL, HELEN F.** The role of the school in child abuse and neglect. Ann Arbor, Michigan: ERIC Clearinghouse on Counseling and Personnel Services, 1977, 64 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83 plus postage. (HC not available from EDRS.) Order No. ED137715.

A comprehensive review of the social and psychological problems of child abuse and the role of the schools and community agencies in dealing with the problem are offered in this handbook. Topics covered include identification by the school, reporting, the school's role in treatment, the importance of the school environment, the incidence and etiology of abuse, legal problems of definition and legislation, and the historical perspective. A bibliography is included.

2512 **SNYDER, MARJORIE SIMS.** Project HOLD: a secondary learning disability project. *Resources in Education (ERIC)*, 12(9):40, 1977. 8 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED137717.

Project HOLD, a Title VI-G Child Service Demonstration Center, was established as a cooperative effort between Northeast Louisiana University and the Ouachita Parish School System. The project's primary purpose is to plan, explore, implement, and refine a program for students in grades 7 through 12 who exhibit average, above average, or potentially average intelligence but who fail to achieve in one or more of the areas of reading, handwriting, arithmetic, and spelling, and who display perceptual-language deficiencies but do not have physical or emotional handicaps. The

secondary purpose of the project is to provide a teacher training program for secondary-school personnel and for others interested in working with learning-disabled students. The project's third major purpose is to provide community service through in-service workshops for interested citizens, parents, and educational personnel.

2513 Georgia University. *An Experimental Study in Oral Language Readiness in Paradigmatic Language Behavior in Two Primary Classes of Learning Disabled Children.* Cartelli, Lora Marie. Athens, Georgia, 1976. 155 p. Available from University Microfilms, P.O. Box 1764, Ann Arbor, Michigan 48106. Price MF $7.50; Xerography $15.00. Order No. 76-29, 510.

A study of the effect of paradigmatic training in oral language skill on specific reading abilities involved 4 randomly selected classes of learning-disabled children (N=46). The Key to Learning series was used as the experimental treatment in 2 classes, and the remaining 2 classes were used as controls. Pretests, posttests, and follow-up measures included tests of reading skills and of paradigmatic language structures; Stanford-Binet intelligence scores were used to divide students into high-ability and low-ability groups prior to testing. Results indicate that children who received special training performed significantly better on all criterion measures, that gains were rapid and positive for the experimental group, that training did interact with treatment, and that intellectual ability did not interact with treatment or time of testing. These findings indicate that paradigmatic language behaviors represent an important skill in oral and written communication, and that they are teachable and testable.

2514 South Dakota University. *Elementary versus Special Education Teachers' Perceptions in Handling Learning, Behavior, and Neurological Problems. Final Report.* Minor, James A. Vermillion, South Dakota, 1976. 263 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $14.05, plus postage. Order No. ED131624.

The final report of a field survey of 140 elementary school teachers concludes that they feel relatively adequate in teaching children with learning, behavior, and neurological problems. However, when the teachers encounter difficulties in assisting a handicapped child, the probability increases that they will request special assistance. Chapter 1 discusses the need for the study, a statement of the problem, delimitations, and the methodology employed. In a review of the literature in chapter 2, it is noted that learning and behavior problems classified on the basis of the teacher's knowledge usually determines the child's future academic performance and his need for special education. Chapter 3 describes the design and testing of the survey instrument. Chapter 4 presents a statistical analysis of teacher responses and chapter 5 provides a summary of results. Survey forms and materials are exhibited in the appendix.

2515 Minnesota University. Visual information processing: evaluation of a training program for children with learning disabilities. Egeland, Byron, et al. Minneapolis, Minnesota: Research, Development and Demonstration Center in Education of Handicapped Children, 1976. 26 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83, plus postage. (HC not available from EDRS.) Order No. ED132161.

After 8 weeks' participation in an experimental visual information processing training program, 35 second grade learning disabled children were superior to contrast and control groups on a battery of information processing tasks, the Embedded Figures Test, the Matching Familiar Figures Test, and 2 reading achievement measures. A delayed posttest demonstrated that the gains were sustained for 2 months. The experimental visual training program taught analysis of visual material into component parts, systematic scanning of visual arrays, pick-up, description, memory storage of distinctive information, and efficient resolution of visual match-to-sample problems.

2516 Early identification of learning disabilities and suggestions to assist classroom teachers in program design. Rockville, Maryland: Montgomery County Public Schools, 1976. 72 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $3.50, plus postage. Order No. ED132172.

A handbook describes the Montgomery County Public Schools procedure for identifying and providing special programs for learning disabled (LD) students entering the first year in any primary grade—as recently mandated by Maryland state law (Section 98C, added to article 77 of the Annotated Code of Maryland by House Bill 234). Various sections of the handbook describe how implementation of this requirement is accomplished by early screening of all students, ongoing assessment of all students, and devising special teaching strategies for LD students identified. Utilizing the knowledge that classroom teacher observation is an excellent source of information about children's achievement levels, the Maryland Systematic Teacher Observation Instrument was designed. This instrument can be used by the teacher to summarize each child's daily performance.

2517 **ZAWADZKI, ROBERT F.** A program to train teams of education personnel to serve certain handicapped children who exhibit marked behavior disorders. *Resources in Education (ERIC)*, 12(4):139, 1977. 34 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED132142.

Sixteen teams consisting of educational, psychological, and counseling personnel were successfully trained to meet the needs of handicapped children through identifying classroom behavior disorders in themselves and in the children, and by devising techniques to modify such behavior disorders. Each member of the 16 teams participated beforehand in a 45-hour program of orientation, teaching, and counseling. Findings were obtained using a wide variety of alternatives for many disruptive teaching situations. Appendixes to the report include a 168-item list of disruptive student classroom behaviors, 35 disruptive behaviors of team members discovered by themselves, clinical supervision forms and reward systems, and a "control of strategy" outline.

2518 Harvard University. Student classification materials, June 1976 supplement. Cambridge, Massachusetts: Center for Law and Education, 1976. 131 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $7.35, plus postage. Order No. ED132749.

Case development concerning the labeling and grouping of normal and exceptional children for educational purposes are provided in a supplement to an earlier edition of student classification materials. Summaries of cases are grouped into 6 sections: (1) Exclusion of exceptional children (e.g., the handicapped child's right to a free public education and class action suits for the cause of the handicapped); (2) Exclusion of normal children (e.g., discrimination on the basis of sex and exclusion for disciplinary reasons); (3) Protective measures of a procedural nature (e.g., due process hearings, cases on testing confidentiality of records, and behavior modifying drugs); (4) Deficient programs (e.g., bilingual situations as well as inadequacies in other handicapped child programs and neglect in teaching basic academic skills in regular classes); (5) Tracking (e.g., ability grouping schemes); and (6) Federal law (e.g., the Rehabilitation Act of 1973, federal assistance to the states for education of the handicapped, and the Education for All Handicapped Children Act—Public Law 94-142).

2519 Nova University. Maki II Practicum. *The Resource Center Program (A Model for Mainstreaming and Serving Children with Special Needs)*. Feudo, Ridy A. 1976. 267 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $14.05, plus postage. Order No. ED132748.

The components of a pilot resource center program for serving the special mainstreaming needs of 123 children ages 3-21, as required by Chapter 766 of the Massachusetts Special Education Act, are described. The general purposes of the program and an overview of early plan development are provided in the first 2 sections. A time study plan for program execution, system-wide sharing of special study requirements and problems, and inservice retraining workshops for regular teachers are described in Section 3. Strategies for achieving 10 goals, including identification and referral, individual prescriptions, and mainstreaming and integration are detailed in Section 4. Section 5 provides an ongoing formative evaluation within a question and answer format. An outline of the staff inservice retraining program

and a copy of the inservice retraining evaluation survey are contained in Section 6. Queries about restated program objectives are answered in section 7, which also displays evaluation forms administered to regular and resource program teachers, supporting staff personnel, and parents of the children connected to the program. Evaluation forms described in Section 7 are analyzed in Section 8. Section 9 contains a product evaluation checklist and 19 appendixes, including the Massachusetts Special Education Act—Chapter 766, an educational plan, and an evaluation request form.

2520 **KIRP, DAVID L.** The "special" child goes to court. Trends in education series. Columbus, Ohio: University Council for Education Administration, 1976. 18 p. Available from The University Council for Educational Administration, 29 West Woodruff Avenue, Columbus, Ohio 43210. $3.00.

The difficulties encountered in achieving legal reforms to better ensure the educational rights of handicapped children are discussed. The nature of the problem, as well as certain structural and organizational characteristics of present special education programs, are the chief obstacles to translating legal reform into educational reality. Up to now, the courts have not substantively addressed the rights of special children, except in due process cases, where judges can resort to well-established precedents for remedies to specific problems. Despite the courts' insistence, in defining the minimum obligation of school districts, that the schools adhere to constitutional standards, school district policies will have a substantial impact on the role the courts will ultimately play. However, if "special" children could obtain discreet help without being labeled, then the felt necessity for legal reform would be greatly diminished.

2521 Indiana University. *Occupational Training Plans for Disadvantaged and Handicapped Students in Vocational Education. A Manual for Use in Cooperative Work Experience Programs.* Eley, Robert K., ed. Bloomington, Indiana: School of Education, 1976. 253 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $14.05, plus postage. Order No. ED132286.

Model training plans are provided for vocational instructors or coordinators in a manual for use in work-education programs for disadvantaged and handicapped students. The specific group targeted by each training plan is identified, and information is provided on the amount of in-school and on-the-job training required to learn the job skill, a list of learning tasks, the total time needed to learn the particular skill involved, and spaces for evaluation and study assignments. Training plans are offered for the following occupations: assembly line worker, automobile service station attendant, bus boy, carpenter's helper, cook helper, dishwasher, general farm hand, general housekeeper, grocery cashier, laundry worker, lawnmower repairman, machinist helper, mail clerk, physical therapy aide, steam table server, and stock clerk.

2522 **BRANTLEY, MICHAEL B.** Prevocational training units for trainable mentally handicapped students: with suggested uses for educable, "normal," and gifted students. Glendale, Arizona: Westside Area Career/Occupartion Project, 1976. 87 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $4.67, plus postage. Order No. ED132285.

A series of 18 different units outlines a wide variety of subskills that can be taught to TMR students in a prevocational program. A listing of goals, materials required, instructions on how to proceed, and modifications for use with EMRs, normal students, and gifted students are provided with each unit. The 18 units are (1) Telephone Book, (2) Wiring, (3) Fine Motor, (4) Alphabet Cards, (5) Order Filling, (6) Pipe Assembly, (7) Sorting, (8) Packaging, (9) Mail Sorting, (10) Measurement, (11) Stapling, (12) Collating, (13) Wrench and Socket, (14) Wrapping, (15) Woodburning, (16) Soldering, (17) Perceptual, and (18) Stringing. The Introduction and General Information section of the program description contains additional information on the programs's purpose, who can use it, how to adapt it for use with higher functioning students, program costs, resources for materials, use of donated materials, and how the program works.

2523 Competency based teacher education and evaluation. A selective bibliography. Exceptional Child Bibliography Series No. 630. Reston, Virginia: Council for Exceptional Children, 1976. 24 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED129003.

A bibliography on competency based teacher education and evaluation contains approximately 85 abstracts and indexing information for documents or journal articles selected from the computer files of the Council for Exceptional Children's Information Services and the Education Resources Information Center (ERIC), and published from 1955 to 1975. Each abstract includes bibliographic data, descriptors indicating the subject matter covered, and a summary of the document's contents. Instructions are included for using the bibliography, and a list of journals from which articles were abstracted is provided. An order form is included for ordering paper or microfiche copies of the documents from ERIC Document Reproduction Service.

2524 Mainstreaming: Program descriptions in areas of exceptionality. A selective bibliography. Exceptional Child Bibliography Series No. 623. Reston, Virginia: Council for Exceptional Children, 1976. 37 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED129004.

A bibliography on mainstreaming: program descriptions in areas of exceptionality contains approximately 210 abstracts and associated indexing information for documents or journal articles selected from the computer files of the Council for Exceptional Children's Information Services and the Education Resources Information Center (ERIC), and published from 1961 to 1975. Abstracts are classified under the following headings: Aurally Handicapped Early Childhood, Mentally Retarded, Emotionally Handicapped, Gifted and Creative, Learning Disabled, Visually Impaired, and Physically Handicapped. Each abstract includes bibliographic data, descriptors indicating subject matter covered, and a summary of the document's contents. Instructions are included for using the bibliography, and a list of journals from which articles were abstracted is provided. An order form is included for ordering paper or microfiche copies of the documents from ERIC Document Reproduction Service.

2525 Sex education. A selective bibliography. Exceptional Child Bibliography Series No. 605. Reston, Virginia: Council for Exceptional Children, 1976. 30 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED129007.

A bibliography on sex education contains approximately 135 abstracts and indexing information for documents or journal articles selected from the computer files of the Council for Exceptional Children's Information Services and the Education Resources Information Center (ERIC), and published from 1962 to 1975. Abstracts are grouped under the following headings: Handicapped Children, Aurally Handicapped, Disadvantaged, Emotionally Disturbed, Mentally Handicapped, Multiply Handicapped, and Learning Disabled. Included in each abstract are: bibliographic data, descriptors indicating the subject matter covered, and a summary of the document's contents. Instructions are provided for using the bibliography, and a list of sources from which articles were abstracted is included. An order form is provided for ordering paper or microfiche copies of the document from ERIC Document Reproduction Service.

2526 Emotionally disturbed--educational programs. A selective bibliography. Exceptional Child Bibliography Series No. 618. Reston, Virginia: Council for Exceptional Children, 1976. 22 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED129010.

A bibliography on emotionally disturbed--educational programs contains approximately 75 abstracts and associated indexing information for documents or journal articles published from 1950 to 1975 and selected from the computer files of the Council for Exceptional Children's Information Services and the Education Resources Information Center (ERIC). Each abstract includes bibliographic data, descriptors indicating the

subject matter covered, and a summary of the document's contents. Instructions are provided for using the bibliography, and a list of journals from which articles were abstracted is included. An order form is provided for ordering paper or microfiche copies of the documents from the ERIC Document Reproduction Service.

2527 Emotionally disturbed--teaching methods. A selective bibliography. Exceptional Child Bibliography Series No. 617. Reston, Virginia: Council for Exceptional Children. 1976. 25 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED129009.

A bibliography on emotionally disturbed--teaching methods contains approximately 85 abstracts and related indexing information for documents or journal articles selected from the computer files of the Council for Exceptional Children's Information Services and the Education Resources Information Center (ERIC), and published from 1960 to 1975. Each abstract includes: bibliographic data (identification or order number, publication date, author, title, source or publisher, and availability), descriptors indicating the subject matter covered, and a summary of the document's contents. Instructions are provided for using the bibliography, and a list of journals from which articles were abstracted is included. An order form is included for ordering paper or microfiche copies of the documents from ERIC Document Reproduction Service.

2528 Educable mentally retarded--programs/-teaching methods. A selective bibliography. Exceptional Child Bibliography Series No. 621. Reston, Virginia: Council for Exceptional Children, 1976. 28 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED129017.

A bibliography on educable mentally retarded--programs/teaching methods contains 100 abstracts and related indexing information for documents or journal articles chosen form the computer files of the Council for Exceptional Children's Information Services and the Education Resources Information Center (ERIC), and published from 1970 to 1975. Included in each abstract are bibliographic data, descriptors indicating the subject matter covered, and a summary of the document's contents. Instructions are provided for using the bibliography, and a list of journals from which articles were abstracted is included. An order form is provided for ordering paper or microfiche copies of the documents from ERIC Document Reproduction Service.

2529 Educable mentally retarded--curriculum. A selective bibliography. Exceptional Child Bibliography Series No. 622. Washington, D.C.: National Institute of Education, 1976. 22 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED129018.

A bibliography on educable mentally retarded--curriculum contains approximately 90 abstracts and related indexing information for documents or journal articles chosen form the computer files of the Council for Exceptional Children's Information Services and the Education Resources Information Center (ERIC), and published from 1970 to 1975. Included in each abstract are bibliographic data, descriptors indicating the subject matter covered, and a summary of the document's contents. Instructions are provided for using the bibliography, and a list of journals from which articles were abstracted is included. An order form is provided for ordering paper or microfiche copies of the document from ERIC Document Reproduction Service.

2530 **FRICK, TED.** *Application of SIGGS to Project PRIME: A General Systems Approach to Evaluation of Mainstreaming.* Washington, D.C.: Bureau of Education for the Handicapped, 1976. 58 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $3.50, plus postage. Order No. ED129841.

The general systems model in education is an extension of the models of input/output, input/process/product, and cybernetic systems, adding the dimension of environmental influence on the system and vice versa. If the theory model is

changed, traditional statistical procedures may no longer be applicable and other methods should be employed. The Set, Information, Graph, and General System Model (SIGGS) utilizes set theory, information theory, and digraph theory as models to extend general systems theory. Also discussed is application of the SIGGS model and information statistics to the Indiana Behavior Management Systems (IBMS), an observation system concerned with teacher management of off task, deviant learner behavior, used in an evaluation of Programmed Reentry (of mildly handicapped children) Into Mainstream Education (Project PRIME).

2531 **BATTAGLIA, MARGUERITE.** Mainstreaming from plan to program: from the perspective of the regular classroom teacher. *Resources in Education (ERIC)*, 12(10):75, 1977. 11 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED139230.

A mainstreaming program for handicapped children within an open space and team teaching situation is outlined. Ways that teacher attitudes, the use of learning centers, and placement procedures can facilitate successful mainstreaming are described. Examples of methods of flexible groupings within the large group and of monitoring student progress are also provided.

2532 **BATTLE, DOLORES E.** Mainstreaming from plan to program: the speech and language component of a mainstream program. *Resources in Education (ERIC)*, 12(10):75, 1977. 17 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED139229.

The importance of language training for young handicapped children is stressed and the speech and language component of a mainstream program is described. Language is defined as the intercorrelation of linguistic experiences, non-linguistic experiences, and cognitive perceptual organization. The various language programs used in the College Learning Laboratory Mainstream Language Program at the State University College at Buffalo, New York are outlined. Procedures for identification of children for mainstreaming, intervention, assessment (with comments on specific tests), and on-going assessment are outlined, including abstract thinking development, verbal expression development, conceptual thinking development, and auditory skill development.

2533 **CLONINGER, LEONARD.** Training modules in career education for the mentally retarded. *Resources in Education (ERIC)*, 12(10):74, 1977. 18 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED139224.

A training format on career education for teachers of the MR is presented and organized into the following modules: background, facilitation, assessment, curriculum, and issues. Contained in each module are 5 to 8 situational questions intended to stimulate discussion and coded to suggested activities (such as inviting recruiters from industry to visit the class), reading assignments, and references. The module format must be kept dynamic through updating the resources utilized.

TREATMENT AND TRAINING ASPECTS – Psycho-social

2534 **GIBSON, FRANK W., JR.; LAWRENCE, P. SCOTT; & NELSON, ROSEMERY O.** Comparison of three training procedures for teaching social responses to developmentally disabled adults. *American Journal of Mental Deficiency*, 81(4):379-387, 1977.

A training procedure utilizing modeling, instructions, and feedback was more effective than modeling only and the dual procedure of instructions and feedback in teaching 3 developmentally disabled adults peer interactive skills involving verbalization, recreation, and cooperation. In the 2 training procedures involving modeling, videotapes of nonMR adults were used. Each subject underwent 9 training sessions; in each session 1 of the 3 target responses was trained by 1 of the 3 training procedures. However, on the subsequent probes, data were collected not only on the target response that was trained but also on the other 2 responses that were untrained in that particular training session. The greatest skill level increases were evidenced in recreation responses, followed by verbalization, and cooperation. These differential effects may be due to the varying intrinsic reinforcement qualities of the 3 response classes. (34 refs.)

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2535 **BAIR, ANNE G.** Social skills assessment and curricula. *Resources in Education (ERIC)*, 12(9):79, 1977. 46 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED138033.

An independent toy play curriculum for young handicapped children is described. Toys were analyzed according to functions in 3 classifications: physical toy skills (toys designed to elicit gross motor action); constructive toy skills (toys designed to elicit the child's imagination and organization); and functional toy skills (toys designed to elicit simple motor actions of short duration). Included in the curriculum is information on pretesting and instruction, and instructional profiles and progress profiles which list behavioral objectives and criteria for each toy. Information is presented on 9 other curricula for occupational, social, communication, and self-help development of handicapped children.

2536 **TILLMAN, LOIS, J.** The theory of love concept as an integral part in the education of the educable mentally retarded youth. *Resources in Education (ERIC)*, 12(9):79, 1977. 157 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $8.69, plus postage. Order No. ED138030.

The effectiveness of a humane value activity oriented summer program to increase IQ scores and improve behaviors of 40 EMR children between 6 and 12 years of age was examined. Teachers of the experimental group participated in a 10-day workshop on ways to incorporate the humane value concept into activities with EMR children. A Posttest-Only Control Group Design was used for the Behavior Rating Scale, and a pretest-posttest control group design was used for the 2 IQ measures (Peabody Picture Vocabulary Test and Stanford Binet Intelligence Scale). Results indicate that the humane value treatment improved the Ss' behavior, that the humane value treatment did not affect the IQ scores of the EMR students, and that the humane value workshop probably affected teacher planning and content of activities.

2537 **JANIS, MARJORIE G.; & COSTELLO, JOAN.** The discovery room—developing an approach for teachers to help children with problems in primary school. *Resources in Education (ERIC)*, 12(9):37, 1977. 26 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED137691.

The Discovery Room is a mental health oriented primary school intervention program for children with learning and behavioral difficulties in the classroom, which has been steadily modified over a 4-year period by accommodating real-life needs of an inner city school. A special teacher works with children individually or in pairs for 2 30-minute sessions per week in a special room. Academic and social functioning improvements are achieved by strengthening the child's self-image through work with varied materials and imaginative play in the context of a close, supportive relationship between the Discovery Room teacher and the child, and positive communication with parents and classroom teacher.

2538 **ARDI, DANA B.** New avenues of teaching resources — Sesame Street programs for the mentally retarded child. *Resources in Education (ERIC)*, 12(10):71-72, 1977. 13 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED139197.

The Sesame Street "Play to Grow" materials, designed to foster positive self-image of MR children, were evaluated with 45 second graders, 45 day care program children (mean age 4.3 years), and 173 MR children (4 to 12 years old). Children's motoric behavior, visual attention, and verbal comments were recorded during tape presentations. Findings indicate that although normal second graders were very aware of the differences in the way the MR children went about performing "Play to Grow" activities, there was no prejudice or bias detected; that MR children were more involved with their viewing; that attention of both MR and normal children averaged from "high moderate" to "very attentive"; and that children's comprehension of "Play to Grow" segments was excellent. A sample segment outline and a list of the program's values are provided.

TREATMENT AND TRAINING ASPECTS — Occupational

2539 **MALLAS, ARIS A., JR.** Current workshop practices: strengths and weaknesses. *Education and Training of the Mentally Retarded*, 11(4):338-341, 1976.

There are some outstanding sheltered workshops in the United States, but most leave much to be desired. The image of workshops as a place where society relegates its unwanted cast-offs has been difficult to overcome. The advent of the Wagner-O'Day Act amendments and state-use laws may give impetus to changing this image. Private workshops have a unique instinct for survival, the ability to be flexible, and the ability to serve as an essential employment resource for marginal workers. However, the weakness in current workshop practices are greater numerically, embracing both organization and operation. Major problems exist in programming, too. Workshops generally are undercapitalized and operate in a hand-to-mouth type of existence. Management is often inefficient. A surprising number of workshops do not understand the Wages and Hours Regulations of the Department of Labor. Professional Personnel have little concept of the economic aspects of their functioning within a workshop and tend to accept little responsibility for generating revenue sufficient to recover the costs of their positions. The time has come for careful rethinking and rebuilding if workshops are to train productive citizens.

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2540 **RICHARDSON, STEPHEN A.** Careers of mentally retarded young persons: services, jobs, and interpersonal relations. *American Journal of Mental Deficiency*, 82(4):349-358, 1978.

Life histories and follow-up data at age 22 were obtained for the total Aberdeen (Scotland) population of children classified as MRs (index cases), and histories also were obtained at age 22 from young adults matched for sex, chronological

age, and social background who had never been classified as MRs. The study population was selected from all people who were born in the years 1951-1952 and who resided in the city in 1962. Of the 88 index cases, 76 were matched. Of the index cases at a special school, 18 percent returned to regular schools, an indication that placement in special education was not a one-way process at the time and place of this study. Eighty percent of the index cases who finished schooling in special classes received no subsequent MR services. Of the index cases not receiving any MR services at age 22, 8 percent were unemployed as opposed to 2 percent of the comparison Ss. Of jobs held at age 22, the index cases, as a group, held positions requiring lower levels of skill and fewer interpersonal dealings and giving less take-home pay. However, the index cases appeared to be less discontent with their work than their nonMR peers were. (17 refs.)

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2541 **BROWN, ROY I.** Vocational training and the mentally handicapped. In: Das, J. P.; & Baine, D., eds. *Mental Retardation for Special Educators.* Springfield, Illinois: Charles C Thomas, 1978, Chapter 14, p. 280-308.

In order to provide successful training for the MR, it is necessary to include vocational, social, home-living, and leisure time skills in a coordinated program. In the past, occupation was the rule. Now the accent should be upon detailed and structured training, with small steps leading to various goals within the community. In this type of program, general skills should be taught which can be transferred to a variety of other programs and situations. Assessment should be integrated with training. In addition to determining what types of vocational tasks the individual can perform, the staff also must assess a number of social skills. It may be useful to know about an individual's level of educational attainment in skills such as arithmetic, reading, and writing, but attainment in practical application is most important here. Some individuals may not appreciate the relevance of the program when they first come to a training unit. Institution of a token system may facilitate their responses. A philosophy of industrial training which allows for the selection of appropriate contracts also should be developed by staff members. (27 refs.)

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2542 **TEMERLIN, M. K.; TROUSDALE, W. W.; LACRONE, H. H.; HARRISON, C. H.; & RUNDELL, O. H.** Effects of increased mothering and skin contact on retarded boys. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 35, p. 327-333.

An attempt was made to assess the relative effects of cuddling and actual skin contact on behavioral changes in SMR and PMR boys aged 4 to 12 years old. The Ss were 32 males divided into 4 groups matched on chronological age, mental age, and admission date. A two-by-two factorial design was used, the experimental variables being the relative amounts of mothering and skin contact. Each of the groups received (1) active mothering from an attendant dressed in a standard white, sleeveless uniform, (2) active mothering from an attendant dressed in a regular uniform plus a long-sleeved plastic raincoat and surgical gloves, (3) passive mothering from an attendant dressed in a standard uniform, or (4) passive mothering from an attendant dressed in a standard uniform plus raincoat and surgical gloves. In groups 1 and 2, the "mother" rubbed the child's skin while hugging, cuddling, and rocking him. At the end of 8 weeks of each of the treatments, data on choice behavior, Vineland Social Maturity Scale scores, and disturbance reports did not suggest the superiority of either mothering or skin contact, considered as separate factors, in producing desirable behavioral changes. (9 refs.)

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2543 Work and the mentally handicapped. *Lancet,* 1(8018):963, 1977.

A new report from the Campaign for the Mentally Handicapped questions the kind of work that is

available to the mentally handicapped in local-authority adult training centers and, indeed, the very assumption that work is the best way to occupy the time and develop the capabilities of the handicapped. The fact that most adult training centers are work-oriented is justified by the argument that it is unfair to deprive the handicapped of worker status and the opportunity to contribute towards self-maintenance. However, most of the work carried out in training centers often is no more than a means of filling time, the end-product rarely has much intrinsic value, and the task could be done much more quickly and cheaply by machines. Moreover the financial rewards for the work done are derisory. Adult training centers should offer the mentally handicapped as far as possible the same opportunities, and the basis on which to choose between them, as the non-handicapped. To achieve this aim, they must offer realistic work experience within the center, on-the-job training, job-placement in open employment, crafts workshops, facilities for activities which are not work-oriented, and continuing education. (1 ref.)

2544 Educable mentally retarded-career education. A selective bibliography. Exceptional Child Bibliography Series No. 682. Reston, Virginia: Council for Exceptional Children, 1976. 20 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED129019.

A bibliography on educable mentally retarded—career education contains approximately 75 abstracts and related indexing information for documents or journal articles chosen from the computer files of the Council for Exceptional Children's Information Services and the Education Resources Information Center (ERIC), and published from 1970 to 1975. Included in each abstract are bibliographic data, descriptors indicating the subject matter covered, and a summary of the document's contents. Instructions are provided for using the bibliography, and a list of journals from which articles were abstracted is included. An order form is provided for ordering paper or microfiche copies of the document from ERIC Document Reproduction Service.

2545 Tennessee State Department of Mental Health, Nashville. Cottage Training Workshop. Annual Report for Year Ending June 30, 1976. *Resources in Education (ERIC)*, 12(2):70, 1977. 37 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED129038.

The 1976 report of a project that prepares PMR and SMR adults for sheltered employment, qualifying them for low-level group placement, is presented. Chapter I discusses the project's history and its program goals. Chapter II describes the 26 PMR clients served in terms of sex, IQ, institutional history, parent contact, and use of medication. Chapter III discusses the use of the Vocational Behaviors Observation Form in developing effective individual training strategies. Chapter IV discusses teaching of benchwork tasks, and correlates clients' acquisition of tasks with demographic variables. Chapter V outlines 7 activities and goals planned for 1977. Charts and tables are provided for the layout of the training college and demographic characteristics of the clients.

2546 *Rehabilitation of the Handicapped Programs, 1976. Hearings before the Subcommittee on the Handicapped of the Committee on Labor and Public Welfare, United States Senate, Ninety-Fourth Congress, Second Session on Oversight Hearings on Rehabilitation of the Handicapped Programs and the Implementation of Same by Agencies Under the Rehabilitation Act of 1973. Part 1. February 20, 23, 24, 26; March 30, 1976.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1976.

Full texts of all prepared statements and supplemental materials presented during 5 days of oversight hearings on programs for rehabilitation of the handicapped and their implementation by agencies under the Rehabilitation Act of 1973 are presented. Included are statements made by State and local directors and other representatives of various institutions and organizations for the physically and mentally handicapped, and by representatives from State departments of education, Federal agencies, State and national advisory councils, and various professional organizations.

National, local, and institutional concerns regarding the conditions of rehabilitation programs for the handicapped are represented through the statements, exhibits, and panel discussions. Additional information in the form of articles, publications, official communications, questions and answers, and selected tables is also included.

2547 CRONK, CYNTHIA; et al. Vocational language project for secondary trainable mentally retarded. Ebensburg, Pennsylvania: Admiral Peary Area Vocational-Technical School and Applachia Intermediate Unit 8, 1976. 57 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $3.50, plus postage. Order No. ED133609.

The purpose of the vocational language project was to develop a program for secondary TMR students based on an analysis of the concepts needed for entry and continuation in vocational training programs and related jobs. Twenty-five students from the Ebensburg State School in Pennsylvania were observed in the areas of carpentry, woodworking, and auto body; task analyses were developed which included task statements, method verbs, concept areas, and detailed task breakdowns. Phase II consisted of the development of assessment devices and the testing of concepts; Phase III involved experimental teaching at levels indicated by the test results, and concept modules developed for a limited number of concepts based on the task analyses. The initial project demonstrated a relationship between acquisition of vocational skill and language development, while the concept module approach proved effective in organizing vocational tasks in terms of progress in a given skill area. Appended information includes assessment instruments, list of concepts, several task analyses for the 3 vocational areas, and 14 concept modules including goals, materials, and procedures.

2548 Missouri University. Project price needs assessment study. Working paper No. 7. Brolin, Donn E.; et al. Columbia, Missouri: Department of Counseling and Personnel Services, 1976. 94 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $4.67, plus postage. Order No. ED133635.

The overall goal of Project PRICE, a 3-year project funded by the U.S. Office of Education's Bureau of Education for the Handicapped, is to develop a methodology by which school systems can educate school personnel, communities, and families to provide more relevant career education instruction and supportive services to EMR students. This study reports the results of the Needs Assessment Study conducted in the 6 cooperating school districts during the first project year. The purpose of the study is to ascertain the major competencies needed by EMR students, personnel most appropriate to teach them, integration barriers, materials needed, inservice training needs, and special educator assistance needed by school personnel. Limitations and implications of the study are suggested.

2549 Wisconsin University. *An Investigation of the Teacher Competencies Needed to Utilize Diagnostic Test Data in Prescribing Occupational Learning Experiences in Teaching EMRs. Final Report.* Nelson, Orville, et al. Menomonie, Wisconsin: Center for Vocational, Technical and Adult Education, 1976. 110 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $6.01, plus postage. Order No. ED137534.

A study was conducted to determine the teacher competencies needed in order to develop valid and effective occupational learning experiences for EMR students based on available diagnostic test data and information. Each 4-member team consisted of a special educator, vocational instructor, audiovisual specialist, and a counselor, special educator, or vocational educator depending on the most effective team organization within the participating school. An action research design was utilized. Vocational teachers identified problems in modifying instructional materials, teaching strategies, and classroom procedures while team and staff members designed solutions, which were then implemented and evaluated by the vocational teacher; teams in other participating schools assessed transportability of the developmental experiences and the resulting product. Three workshops were conducted which examined: 1) teaching techniques, classroom management strategies, and practical evaluation; 2) techniques for effective communication, task analysis, rewriting reading materials, and developing mediated instruction; and 3) identifying participants' com-

petencies in relation to those needed to develop effective instruction. A 2-week teacher training workshop agenda was developed and 2 computer programs were designed to retrieve jobs from a data bank which match specified DOT job titles (Dictionary of Occupational Titles) and present information on EMR characteriestics. (Appendixes are bound separately.)

2550 Wisconsin University. *An Investigation of the Teacher Competencies Needed to Utilize Diagnostic Test Data in Prescribing Occupational Learning Experiences in Teaching EMRs. Final Report. Part II. Appendices.* Nelson, Orville, et al. Menomonie, Wisconsin: Center for Vocational, Technical and Adult Education, 1976. 258 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83, plus postage. (HC not available from EDRS.) Order No. ED137535.

Appendixes to the final report of an action research project conducted to determine the teacher competencies needed for developing valid and effective occupational learning experiences for EMR students are presented. Appended material includes computer programs; outline for Madison inservice course; communiques and agenda for dissemination conference; math competencies by grade level; reading competencies by grade levels; workshop I materials; visitation guides; workshop II materials; interim workshop II and III materials; workshop III materials; project staff vitas; advisory committee agendas and minutes; vocational teachers competency project reservation form; participant information form; and participant vitas and descriptions of the participating schools from which they came. (The body of the report is bound separately.)

TREATMENT AND TRAINING ASPECTS — Therapy

2551 **SCOTT, ANNE.** The value and practical use of behavior modification programmes: a nurse's viewpoint. *Australian Journal of Mental Retardation*, 4(5):14-17, 1977.

A wide range of behavior modification programs has been planned and carried out by the nursing staff at Strathmont Centre (Gilles Plains, South Australia) to reduce unacceptable behavior in PMR and moderately MR female residents. One program involved 3 SMR residents between the ages of 18 and 25 who stole food from other residents at meal times. Training consisted of removal from the dining room as soon as food was taken from others and involved a reward of extra sweets and verbal praise if this did not occur. In a second program, a 15-year-old SMR who had screaming fits only during meal times was started in a training program consisting of 5 minutes' time-out on a verandah each time screaming occurred and attention and praise when she was quiet. Two other programs were carried out with mildly MR residents, one of whom made constant and annoying requests for self-assurance, while the other girl suffered from severe urinary incontinence. Acceptable behavioral patterns were able to be established in all cases and to be retained through simple programs organized by nursing staff.

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2552 **SASSE, MARGARET.** A.N.S.U.A., A New Start for the Under-Achiever. *Australian Journal of Mental Retardation*, 4(5):7-11, 1977.

ANSUA is an Australian parent-based registered charitable organization which was formed in 1972 to provide assistance through the application of motor-sensory treatment (developed from the work of Temple Fay) to the thousands of children whose problem stems from a neurological dysfunction. This method is commonly known as the Doman-Delacato technique. During the past 4 years, many hundreds of children have benefited from the innovative work of ANSUA. Specific

therapy is administered on the basis of need, irrespective of the means of such children, their parents, or their legal guardians. ANSUA conducts special courses and seminars on the techniques of diagnosis of neurological disorganization associated with speech and reading problems and the necessary treatment. Programs of positive help are now available to children in Victoria, New South Wales, and Queensland. Children accepted for ANSUA programs range from the severely neurologically handicapped to the intelligent underachiever with a minimum neurological dysfunction. (17 refs.)

A.N.S.U.A. Centre
Victoria, Australia

2553 **SCHACHT, LEATRICE S.; et al.** Personality development and learning disabilities: long term follow-up of psychotherapeutic remediation. *Resources in Education (ERIC)*, 12(7):72, 1977. 49 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED135123.

Clinical experiences in working with children with both learning disorders and emotional disorders are detailed. The "psychotherapeutic remediation" approach combines psychodynamic psychotherapy methods with special education techniques, fusing the tutorial role of a remedial teacher and the therapeutic function of a psychotherapist. Diagnostic and treatment techniques in longitudinal case studies of a 10-year-old boy with neurological deficit and poor reality testing and a 6-year-old girl with visual perception problems and secondary emotional difficulties are described.

2554 **BELCASTRO, FRANK P.** Use of behavior modification with L.D. students. *Resources in Education (ERIC)*, 12(7):77, 1977. 20 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135170.

Research on the application of behavior therapy to the modification of the classroom behavior of learning disabled students is reviewed. The methodology and results of the studies are examined and each study summarized. Conclusions indicate that there was little common interpretation of the term "learning disabilities," and that all of the studies had violated one or more of the following requirements of good experimental design: (1) adequate description of subjects; (2) proper sampling techniques; (3) adequate control procedures; (4) statistical analysis of the data; and (5) evaluation of long-term gains.

2555 **DRASH, PHILIP W.; et al.** Hyperactivity in preschool children as noncompliance: a new conceptual basis for treatment. *Resources in Education (ERIC)*, 12(9):74, 1977. 15 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED138000.

A multifaceted behavioral treatment program designed to modify noncompliance in 5 hyperactive preschoolers and to train their parents in techniques of maintaining compliant behavior was implemented. Results indicate that noncompliance and hyperactivity were reduced to normal levels. Parents' use of behavior modification techniques were equilavent to that of trained child behavior specialists. Data support the hypothesis that hyperactivity in the preschool child and noncompliance are operationally equivalent terms, and that an effective means for remediating hyperactivity in preschool children is a treatment program based on modification of compliance behavior.

2556 **MOYER, BETSY G.** Music for children with reading learning disabilities. *Resources in Education (ERIC)*, 12(7):73, 1977. 23 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135134.

A music program for students with reading learning disabilities is described. The program was designed to teach fundamental music skills, to enhance visual/motor and auditory skills through music activities, and to evaluate the effect of music skill development on language reading skills. The daily routine of music exercises is described, including memory song games, rhythm exercises,

singing activities, and sequencing drills. Student improvement in auditory, motor, visual, and social development is also noted.

2557 KAUFFMAN, JAMES M.; SNELL, MARTHA E.; & HALLAHAN, DANIEL P. Imitating children during imitation training: two experimental paradigms. *Education and Training of the Mentally Retarded*, 11(4):324-332, 1976.

Two different research strategies were employed to explore the utility of imitating MR children during imitation training. In Experiment I, the S was a 7-year-old PMR girl whose imitation training consisted of a model only treatment, which employed a single addition to the traditional operant methods of shaping and fading, and an imitation treatment, which consisted of the same shaping, prompting, reinforcement, fading, reinforcement, and verbalization techniques used in the first treatment condition with an additional consequence provided for both prompted and spontaneous imitations—an immediate trainer imitation of the child's response. Tight control was maintained over the number of models shown to the child in each experimental condition. In Experiment II, two methods of imitation training were alternately applied. For a 3-year-old TMR boy, the model only condition was the first training method, and for a 4-year-old TMR girl, imitation was applied first. In this experiment, control over the number of models shown during different training sessions was relaxed in favor of more natural teaching methods. The combined data indicated that being imitated and praised is a more powerful reinforcer than being praised alone. (16 refs.)

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2558 WYATT, GERTRUD L. Parents and siblings as co-therapists. In: Webster, E. J., ed. *Professional Approaches with Parents of Handicapped Children*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 5, p. 115-145.

Together with the setting of the treatment program for children with developmental disabilities, the participants in the therapeutic venture have changed considerably, with parents and siblings now often sharing therapeutic roles and obligations with professionals. Four different models of procedure seem to be representative of the attempt of professionals to work with parents and other family members as their co-therapists. These are a behavior modification approach; a multistep approach, which combines early identification and early intervention, with emphasis upon parent counseling and demonstration of educational techniques to parents; a psychodynamic, interactional approach in which mothers or both parents of young children learn how to become their child's primary therapists; and an approach based upon the theories and techniques utilized in family therapy. While the team approach seems highly promising, some cautions should be observed. In order to prevent a dangerous amateurism, so-called lay helpers will need a degree of preparatory training, and, as treatment proceeds, they must have access to regular professional consultation. (58 refs.)

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2559 *Behavior modification-emotionally disturbed and behavior problems. A selective bibliography. Exceptional Child Bibliography Series No. 608.* Reston, Virginia: Council for Exceptional Children, 1976. 24 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED129008.

A bibliography on behavior modification—emotionally disturbed and behavior problems contains approximately 80 abstracts and indexing information for documents or journal articles selected from the computer files of the Council for Exceptional Children's Information Services and the Education Resources Information Center (ERIC), and published from 1965 to 1975. Each abstract includes bibliographic data, descriptors indicating the subject matter covered, and a summary of the document's contents. Instructions are provided for using the bibliography, and a list of journals from which articles were abstracted is included. An order form is provided for ordering paper or microfiche copies of the documents from ERIC Document Reproduction Service.

2560 **KYSELA, G. M.; & HILLYARD, A.** Applied behavior analysis and developmental handicaps. In: Das, J. P.; & Baine, D., eds. *Mental Retardation for Special Educators.* Springfield, Illinois: Charles C Thomas, 1978, Chapter 9, p. 178-202.

Within the context of remedial efforts with the developmentally handicapped, the last few decades have seen a rapid development in therapeutic techniques of applied behavior analysis. The behavioral model proposed by Skinner (1953) forms the basis for these techniques. According to this model, a person's behavior is thought to be determined by 2 temporally related events, the antecedent events preceding the occurrence of the behavior and the consequent events coming relatively soon after the behavior. A simplified version of the applied behavior analysis decision-making model involves the 5 steps of observation and data collection, program planning, program implementation, review and evaluation, and fading out. Such a program requires the relatively precise observation and measurement of the individual behaviors being studied and the reliability of data collection and recording throughout the course of the program. Accelerating the rate of occurrence of appropriate behaviors, decelerating the rate of occurrence of inappropriate behaviors, and teaching new behaviors are effective intervention techniques at steps 2 and 3 of the model. (35 refs.)

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2561 **LURIE, ABRAHAM.** Multifamily therapy. In: Feingold, B. A.; & Banks, C. L., eds. *Developmental Disabilities of Early Childhood.* Springfield, Illinois: Charles C Thomas, 1978, Chapter 6, p. 59-69.

The use and analysis of family life with reference to processes, particularly group processes, responsible for mental health or illness of individual members has long been an area of study and concern, and multifamily therapy represents a recent specialty developed in this connection. Perhaps the most significant characteristic of the multifamily group process is the development of strong group cohesiveness. Active therapeutic intervention on the part of the leaders is necessary so that the significance of developing relationships is constantly grasped. Cotherapists are more beneficial than a single therapist, since they are better able to handle the intensity and extent of transfer and countertransfers in multiple family situations. As the families get involved in the multiple family therapy session, improvement is often related to changes occurring through action rather than through the gaining of insight. Thus, the families emerge as subgroups within the multifamily group itself and, as such, begin to act on what they perceive to be the problems which they must face. The multifamily therapy process also enables more direct and open communication between adults and children.

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2562 **HITCHINGS, W. D.** Megavitamins and diet. In: Feinfold, B. A.; & Banks, C. L., eds. *Developmental Disabilities of Early Childhood.* Springfield, Illinois: Charles C Thomas, 1978, Chapter 8, p. 92-95.

The use of megavitamins, minerals, and diet has been shown to be beneficial in the treatment of children suffering from autism, schizophrenia, and brain damage and from learning disabilities which may arise as a result of these disorders. An emotionally disturbed 6-year-old boy was the first in a long series of very disturbed people to be treated with this regimen. He is now in his second year of college. The treatment consists in giving huge doses of water-soluble vitamins and "new vitamins" daily. The use of trace minerals varies from one patient to another. They are prescribed on the basis of the results obtained from hair analysis. A further facet of treatment is the use of a high-protein, low-carbohydrate diet. There is evidence that mental functioning and behavior are affected by changes in the concentration of substances normally present in the brain (glutamic acid, uric acid, and aminobutyric acid), and many investigators have pointed out that schizophrenic patients show an increased rate of metabolism of vitamin C. In some cases, the improvement of children with learning difficulties associated with schizophrenia seems quite miraculous, although the majority do not recover so quickly.

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2563 **LAWRENCE, WAYNE; & KARTYE, JOSEPH.** Extinction of social competency skills in severely and profoundly retarded females. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 33, p. 310-319.

The effects of a 4-month discontinuation of a 1-year intensive operant conditioning training program on 21 SMR and PMR females selected from a total population of 32 Ss (chronological age 8 years 8 months to 14 years 5 months) were investigated. The training program was funded for only one year, and a 4-month period ensued between the termination of the original grant and the approval of a second training project. During the interim period, no attempt was made to teach new skills to the children, primary reinforcers were discontinued, and the children were no longer kept in the small groups utilized for training purposes. Scores on the Cain-Levine Social Competency Scale were obtained upon the termination of the formal training period, upon its reinstatement, and again after 10 months' participation in the renewed program. The significant differences obtained on the total scores indicated that the Ss had regressed significantly in their general level of functioning following the 4-month period of no formal training. Significant decreases were seen in initiative, communication ($p<.01$), and social skills ($p<.05$), but no significant change occurred in self-help skills. (17 refs.)

2564 **PALOUTZIAN, RAYMOND F.; HASAZI, JOSEPH; STREIFEL, JOHN; & EDGAR, CLARA LEE.** Promotion of positive social interaction in severely retarded young children. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 32, p. 299-309.

A study was designed to demonstrate the potential use of prompting and reinforcement in promoting positive social interaction among SMR young children. Ten experimental Ss were given imitation training, and 10 control Ss matched for chronological age, developmental age, and development quotient received no special imitation training and were involved in their usual ward activities during the training sessions held for the experimental Ss. Prior to training, all Ss were rated on a Social Interaction Rating Scale designed to measure the level of social behavior of young MRs in a free-play setting. The procedures used to train the experimental Ss to imitate were adapted from those used by Baer et al. (1967). An analysis of variance and t tests indicated that a significant change from pretest to posttest occurred only for the experimental group, and that a significant difference between the means of the 2 groups occurred only on the posttest. It was concluded that the significantly higher level of social behavior in the experimental group resulted from the training procedure. A major finding of the study was that it is possible to elicit positive social behaviors from young SMRs so that they can be reinforced subsequently. (13 refs.)

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2565 **KUIPER, H.** Sensation and activity: play as a possible means of bringing very severe mentally subnormals into activity. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 31, p. 291-295.

An experiment with play activities in groups of very SMR children is demonstrating the possibility of stimulating their development through play activities. Treatment is provided by play leaders (at present, 3 full-time and 3 part-time leaders), all of whom have had experience in handling MR children. The play leaders work with individual children as well as with small groups of 3 to 5 children, whose experiences are passed to the nursing staff. Different treatment is provided for each child. The first step is to try to create a situation which can be used as a basis for what the leader wants to do. Then, an attempt is made to "come to resonance" with the child, so that the leader and the child experience each other. Only when a mutual resonance is achieved can one expect pedagogical results. (18 refs.)

Hendrik van Boeijen-Oord Institution
Assen, Netherlands

2566 **PETERSON, ROLF A.; & MCINTOSH, ERANELL I.** Teaching tricycle riding. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 30, p. 284-290.

A training program was devised for 8 MR children (chronological age 3.5 to 8 years) to develop appropriate pedaling behavior on an exercycle. One child was EMR, 5 were TMR, and 2 were SMR. All could walk, although one displayed poor walking coordination and was reported to have weak leg muscles and to be in need of exercise. The training device, an automated exercycle, consisted of a stationary bicycle or tricycle attached to a control box which was programmed to deliver sweetened cereal automatically. Following base-rate observation trials, the program was started. Training consisted of (1) approach, mounting, and approximation training, (2) a fixed ratio schedule, and (3) a fixed interval schedule. All 8 children learned to ride the exercycle. Two Ss required approximation training, and one of these also required approach training. All the Ss transferred the training to riding tricycles at home or on the ward. It appears that the pedaling program not only taught a skill but also increased attention and activity span in children who were viewed as hyperactive. (4 refs.)

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2567 **FAVELL, JUDITH E.** Reduction of stereotypies by reinforcement of toy play. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 29, p. 278-283.

The effects of reinforcing appropriate toy play behavior on stereotypies in 3 institutionalized SMR and PMR males (chronological age 8 to 14 years) were studied. A multiple-baseline and a reversal design were employed. Baseline data on stereotypies and toy play were collected simultaneously for the 3 Ss. The independent variables (positive reinforcement and prompting of toy play) were then applied successively to one S at a time, while the other continuing base-lines were used as control comparisons. Following the application of the experimental procedure with one S, the procedure was discontinued with that S. A pegboard game was selected for use with all Ss. When an S was trained with this toy, a pegboard and cup of pegs were placed in front of him, and he was handed a peg and told to put the peg in the board. As an initial approximation to this response, the S was reinforced for placing the peg in a small cup on the pegboard. The experimenter initially moved the S's hand through this response and then faded out the physical prompt. The results from both designs indicated that stereotypies were decreased by increasing toy play. (6 refs.)

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2568 **TALKINGTON, LARRY W.; & HALL, SYLVIA M.** Use of a frustration technique to reinstate speech in nonverbal retarded. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 27, p. 264-268.

A frustration technique was applied to 2 SMR males (chronological age 14 and 22 years) who had a history of language usage prior to institutionalization and had failed to respond to the use of reinforcement techniques in speech development programs. Following the baseline measurement, Ss were brought to the testing room twice weekly for 3 weeks. After a 5-minute delay they received ice cream at the canteen and were then dismissed to their cottage. After 6 occurrences of canteen participation, the frustration technique began to be applied. The technique was based upon the notion that the number of verbal responses should increase through manipulation of reward/nonreward. Testing consisted of the presentation of 100 picture cards of common objects, which the Ss were instructed to name. Each S served as his own control and received one frustrated and one nonfrustrated trial per week with the order staggered. A significant increase in word responses was apparent during the 8-week procedure, with daily increases still occurring in the posttesting. (8 refs.)

Fairview Hospital and Training Center
Salem, Oregon

2569 **SMEETS, PAUL M.; & MANFREDINI, DIANNE C.** Skill centers: a model program for young severely retarded children. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 23, p. 217-222.

A 12-month program was developed to promote self-help motor, communication, and social skills in 27 young SMRs with additional handicaps such as severe emotional disturbance and sensory or gross motor impairment. Teachers were trained in a comprehensive program of 8 one-hour sessions during the first month of the project. Basic strategies of operant conditioning were used by all teachers in order to (a) decrease many undesirable behaviors, such as tantrums, running, and aggression, and (b) promote socially acceptable behaviors, in particular those enhancing classroom participation. The technique employed most commonly was that of positive reinforcement. A curriculum for the 4 skill areas was prepared, and the children were rotated through the different curricula. Statistical analyses of pretest and posttest data indicated significant progress ($p<.05$) in the 4 skill areas, the most dramatic improvement being demonstrated in the area of motor development. Remarkable progress also was made with a deaf-mute boy who for years was considered to be PMR and who created severe behavior problems almost daily. (14 refs.)

2570 **WHITMAN, THOMAS L.; CAPONIGRI, VICKI; & MERCURIO, JOSEPH.** Reducing hyperactive behavior in a severely retarded child. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 22, p. 210-216.

A study was undertaken to determine whether the hyperactive behavior of a 6-year-old SMR female could be reduced through reinforcement of a more adaptive incompatible response. Preliminary observation of the S's behavior revealed that she continually walked about the classroom, completely disrupting all ongoing instructional and recreational activities. At home, her parents literally tied her to a chair to control this behavior. A 20-day training program was conducted which consisted of administering reinforcement for responses which led to the S's sitting down. These responses in turn were incompatible with the S's hyperactive behavior. The average number of sitting commands given daily to the S by the teacher during the pretreatment period was 17.8, in comparison with 2.8 for the posttreatment period. The average response latencies to the teacher's sitting commands were 7 and 1.2 seconds, respectively, and the average lengths of time the S remained sitting were 59.8 and 331.6 seconds, respectively. The results strongly suggest that hyperactivity can be reduced through appropriate reinforcement procedures. (7 refs.)

University of Notre Dame
Notre Dame, Indiana

2571 **HYER, RAYMOND J.; SEYMOUR, JUDITH A.; & LEWIS, MERRILEE R.** Project: service through inservice. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 21, p. 202-209.

A pilot program of ambulation training which utilized behavior modification techniques was initiated for 3 nonambulatory MRs (chronological age 1 year 4 months to 4 years 11 months) at the Sunland Training Center, Marianna, Florida. It was felt that a project that succeeded quickly would go a long way toward overcoming institutional inertia. At the same time, the resident, being the most important person in the institution, should be served. Therefore, service through inservice became the byword for the program. The method used was contingency management, which requires only that one be willing to reinforce approximations of a desired behavior consistently. Each member of the infirmary staff was brought in to conduct the training session until all personnel had become effective contingency managers. Responsibility for suggesting program changes and for deciding on the acceptable degree of approximation of behavior lay with the staff. As the effects of the behavior shaping began to show in increments of performance by the residents, staff morale and enthusiasm for the method began to increase, and other departments began hinting that they would not mind some special training in contingency management. (3 refs.)

2572 **WILSON, VIOLET; & PARKS, ROXIE.** Promoting ambulation in the severely retarded child. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 20, p. 195-201.

Intensive ambulation training was started 6 months ago for 12 nonambulatory SMR children (chronological age 4 to 9.5 years). Each child was introduced gradually to the different pieces of

equipment to be used in the training program. The technician then worked with each child in turn. Children were rotated to different pieces of equipment in order to give them as much experience as possible during the working period. The program has proven very successful in helping these children to achieve ambulation. Of the 12 Ss in the group, only 4 have not yet achieved independent ambulation, and they now walk by holding a tie. In addition, sensorimotor training has been shown to promote general mental development. The program has demonstrated the importance of recognizing the uniqueness of each child. Some children may require the experience of one piece of equipment more than another. The children should be engaged in some meaningful activity at all times, and these activities should increase in complexity as the children's abilities increase, in order to present a constant challenge. (1 ref.)

Pacific State Hospital
Pomona, California

2573 **PALUCK, ROBERT J.; & ESSER, ARISTIDE H.** Controlled experimental modification of aggressive behavior in territories of severely retarded boys. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 19, p. 182-192.

The degree to which punishment coupled with positive reinforcement for behavior incompatible with the punished response influences territorial behavior was investigated with 21 SMR boys (chronological age 5 to 10 years). In the first part of the study, Ss were divided into 3 groups interacting in identical environments, and spatial patterning was charted. Territorial behavior manifested by physical fighting as well as by nonphysical acts became obvious in all 3 groups from the first day. The second part of the study assessed the modifiability of territorial behavior in one (experimental) group by immediate verbal punishment of territorial aggression coupled with the application of positive social reinforcement for nonaggressive, socially acceptable behavior. In the other 2 (control) groups, all aggression was punished verbally, or no aggression was punished verbally. Positive social reinforcement for constructive behavior was offered in these groups as well. The greater the amount of punishment applied, the greater was the effectiveness of treatment on overall physical aggression. However, the treatments did not differentially affect territorial behavior. (10 refs.)

2574 **HAMILTON, JOHN; STEPHENS, LYNN; & ALLEN, PATRICIA.** Controlling aggressive and destructive behavior in severely retarded institutionalized residents. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 18, p. 173-181.

On a ward of SMR females exhibiting a large amount of aggressive and destructive behavior, punishment was employed as the primary method of behavior modification. Punishment involved individual confinement to a time-out area for periods ranging from 30 minutes to 2 hours immediately following the occurrence of the behavior to be eliminated. The SMR ward contained 59 female residents of all ages, with IQs mostly between 15 and 35, and with self-care skills developed to the point of moderate self-sufficiency. Some residents exhibited behaviors which were individually specifiable, occurred with little variation in frequency or type, and seldom involved direct interaction with others. In these cases, the punishment procedure proved to be very effective in eliminating the specified behaviors rapidly and totally. In cases of behaviors which were individually specifiable but which occurred with variable frequency or type, vast improvement occurred eventually, but the habit was rarely completely eliminated. Cases exhibiting general misbehavior usually yielded the least dramatic results. (14 refs.)

Gracewood State School and Hospital
Gracewood, Georgia

2575 **WIESEN, ALLEN E.; & WATSON, EDITH.** Elimination of attention seeking behavior in a retarded child. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 17, p. 167-172.

Operant techniques were applied in an effort to eliminate the extreme attention-seeking behavior displayed by an institutionalized SMR boy. A

combination of aversive consequences and positive reinforcement was employed to shape social interaction incompatible with this behavior. A 21-day conditioning procedure was established during which attendant counselors were instructed to say "No" whenever the child approached them with his hand raised or attempted to remove his own clothing. He was penalized for inappropriate behavior by being placed outdoors for brief periods. Furthermore, following an incident of soiling, no bathing was permitted until 5 minutes had elapsed, and water temperature was maintained at below room temperature. Concurrently with the aversive consequence contingency, positive reinforcement in the form of M & M candies was awarded for interaction with any other child. The boy received the candy from another child who, in turn, was reinforced by the counselors. A rapid decrease in the rate of attention-seeking behavior was observed under the aversive consequence condition. (6 refs.)

2576 **WATSON, LUKE S., JR.** Applications of behavior-shaping devices to training severely and profoundly mentally retarded children in an institutional setting. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 15, p. 149-156.

An automated elimination reinforcement device or "toilet trainer" has been developed and tested with 8 SMR and PMR children and has been shown to work quite well. All but 3 of the Ss used it daily for 8 weeks. Two of these 3 never seemed to become aware of the presence of the reinforcement. Their social quotients were 10 and 12, and they were generally unresponsive to their environment. The third MR never eliminated in the trainer during the entire 8-week period; it appeared to be aversive to him. The social quotient range of those who used it successfully was 12 to 25. Although 5 Ss operated the automated reinforcement device satisfactorily when cued to go to the toilet, some were still soiling and wetting even though they were eliminating in the toilet throughout the day. The problem of eliminating outside the bathroom probably could be remedied by the use of another automated device which would signal the MR to go and sit on the toilet whenever an elimination response began to occur. The "toilet trainer" device represents a first approximation to an automated behavior modification technology in an institution. (8 refs.)

Case Western Reserve University
Cleveland, Ohio

2577 **THOMAS, RICHARD L.; & HOWARD, GAIL A.** A treatment program for a self-destructive child. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 16, p. 159-166.

An individualized treatment program was undertaken to divert the attention of an SMR boy from the head-banging behavior he had displayed over approximately a 10-year period. He had been confined to bed for about 18 months, his legs bound to the sides in a camisole and a football helmet on his head. Previous reports of the child's fascination with water suggested the use of whirlpool baths as a diversionary activity. Whirlpool baths were started on a 5-day-a-week basis. After 10 30-minute sessions, all mechanical restraints as well as any physical restraints were removed while the boy was in the tub. The therapist denied the child any physical contact whenever self-destructive behavior was exhibited, and this withdrawal of contact proved to be effective. The boy became very aware of the therapist, and the relationship was meaningful to him. In the seventh month of treatment, restraints on the ward began to be eliminated. The treatment program was successful in reducing self-destructive behavior, and it permitted increased opportunity for training and improvement of the boy's skills. (3 refs.)

Rainier School
Buckley, Washington

2578 **HAGAMEN, MARY.** Early intervention in developmental disabilities: a job for everyone. In: Feingold, B. A.; & Bank, C. L., eds. *Developmental Disabilities of Early Childhood.* Springfield, Illinois: Charles C Thomas, 1978, Introduction, p. ix-xvii.

Early intervention in developmental disabilities is dependent upon the origination of a master plan which provides for a coordinated effort by a wide variety of professionals, in combination with consumers. Cooperation at both intradisciplinary and interdisciplinary levels is essential if all the information presently available in early interven-

tion programs is to be utilized. The services and knowledge of general practitioners, geneticists, obstetricians, neonatologists, pediatricians, and child psychiatrists must be coordinated, and there is a need for interchange between psychologists and educators, between behaviorists, and analysts. Moreover, there has to be a cross-fertilization between the traditional human service fields (health, education, and welfare) and the legal profession. No program can be successful without the involvement of the parent or those who are the child's primary caretaker(s). In contrast to earlier programs of parent involvement where parents were seen to be counseled, the new intervention programs seek to have the parents as active partners to the professional in implementing an organized plan which assures the optimum development of their child. (6 refs.)

Sagamore Children's Center
Melville, New York

2579 **MARTIN, GARRY L.; MCDONALD, STEWART; & OMICHINSKI, MARNA.** An operant analysis of response interactions during meals with severely retarded girls. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 6, p. 67-79.

The interactions of slopping food, eating with one's hands, yelling at mealtime, and playing with utensils in 4 SMR girls and the procedures used to eliminate these activities were investigated. The Ss ranged in CA from 9 to 19 years and in IQ from untestable to 22. Following the initial baseline observations of the undesirable responses, 3 Ss were given social approval for each spoonful eaten without slopping during several evening meals. Since there was little or no decrease in slopping after several sessions, social approval was discontinued, and these Ss were given a 15-second timeout for each instance of slopping. The fourth S ate extremely rapidly and was given the timeout contingency immediately following the baseline observations. In all cases, the timeout punishment was as effective or more effective in reducing slopping than was the social approval for instances of eating without slopping. A temporary increase in one other response of 3 of the Ss and a permanent decrease in one or more other responses of 2 of the Ss occurred coincidentally with the decrease in slopping rates. (19 refs.)

University of Manitoba
Winnipeg, Canada

2580 **LUCKEY, ROBERT E.; WATSON, CARRIE M.; & MUSICK, JAMES K.** Aversive conditioning as a means of inhibiting vomiting and rumination. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Spring field, Illinois: Charles C Thomas, 1976, Chapter 7, p. 80-85.

Aversive conditioning with an Electronic Trainer was used effectively to reduce the frequency of vomiting and chronic rumination in a 6-year-old SMR boy. The apparatus consisted of a portable radio transmitter, a receiver, and a stimulator belt. When activated by the transmitter, a 60-volt dry cell battery source was delivered to 2 electrodes which were attached approximately 4 inches apart on the stimulator belt. Conditioning was conducted in the S's dormitory. A facsimile of the stimulator belt was worn by the boy for 1 week prior to the start of conditioning, when the facsimile was replaced with the real stimulator belt. A marked decrease in the occurrence of vomiting was noted after the fourth day of treatment. After 13 days of freedom from symptoms, the S resumed vomiting on day 24 and continued sporadically over the next 7 days; however, the frequency of vomiting and rumination during this "spontaneous recovery" period never reached the high level observed during the initial days of treatment. After day 31, the S's weight had stabilized, and he vomited only twice during the next 67 days. There was also general improvement in overall behavior. (15 refs.)

2581 **MARTIN, GARRY L.; KEHOE, BONNIE; BIRD, ELIZABETH; JENSEN, VICKI; & DARBYSHIRE, MARILYN.** Operant conditioning in dressing behavior of severely retarded girls. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 9, p. 98-108.

As part of an ongoing therapy and research project, 11 SMR girls (chronological age 7 to 20 years) were entered in an operant conditioning program designed to teach them to dress themselves in order to allow the staff to spend more time with less advanced residents. Instilling

the proper use of each item of clothing was broken down into a number of small steps, each of which was taught using the principles of fading, positive reinforcement, extinction, and/or timeout. Training sessions were approximately 15 to 30 minutes in duration, with a maximum of 8 residents receiving training on any one day. For each task, correct responses were reinforced immediately with verbal praise and candy, a spoonful of dessert, or a small portion of the noonmeal. Incorrect responses were followed by a sharp "No," and the child was ignored for 10 seconds. In no case did an experimenter reprimand or interact with a child during inattentiveness. Training procedures were developed for 10 dressing tasks. In the majority of instances, the improved performance of Ss during sessions has generalized to the ward situation. (10 refs.)

University of Manitoba
Winnipeg, Canada

2582 **MINGE, M. RONALD; & *BALL, THOMAS S.** Teaching of self-help skills to profoundly retarded patients. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 10, p. 109-117.

Six PMR girls (chronological age 8.5 to 15 years) were selected for a self-help program designed to teach attention, coming to the technician, sitting down, remaining seated, standing up, removing shirt or dress, removing pants, removing socks, putting on shirt or dress, putting on pants, and putting on socks. Each of these tasks was broken down into component parts for incremental acquisition at a pace consistent with patients' abilities. Programmed self-help training was given for 2 months in two 15-minute sessions per day. In the teaching of each skill, the S first was given a simple verbal direction and a sufficient gesture or actual tug to ensure her correct response, which was reinforced with food and praise. As the initial steps were mastered, cues were diminished and increasingly complex responses were required for reinforcement to be given. All Ss' situational test scores improved progressively from the first to the second and third administrations. By the end of the training period, they were much more attentive and amenable to many simple verbal instructions. They had greatly improved their ability to dress and undress for bedtime and showers, and problem behaviors were markedly reduced. (4 refs.)

*Pacific State Hospital
Pomona, California

2583 **HARRISON, WADE; LECRONE, HAROLD; TEMERLIN, MAURICE K.; & TROUSDALE, WILLIAM W.** The effect of music and exercise upon the self-help skills of nonverbal retardates. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 11, p. 118-123.

The effect of the combined use of music and exercise on 40 PMR and SMR males' (chronological age 7 to 15 years) performance on an unbuttoning task was investigated. In order to assess any improvement in the general areas of sociability and cooperation, a task of following 10 instructions of varying degrees of complexity was incorporated into the pretest and posttest. It was hypothesized that the combined program of music and exercise would have a significantly greater positive effect upon the performance of the psychomotor skills and the following of instructions than either music or exercise alone or neither music nor exercise. Motivation to achieve maximum performance was induced through reinforcement with a gumdrop upon completion of each of 4 frames of buttons of different sizes and the experimenter's constant encouragement. The results confirmed the hypothesis. Since unbuttoning buttons is clearly a behavior related to the capacity to help oneself, a combination of music and exercise may be a useful supplement when training PMR and SMR children in self-help activities. (10 refs.)

2584 **LEVINE, MARTIN N.; & ELLIOTT, CHARLES B.** Toilet training for profoundly retarded with a limited staff. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 13, p. 137-141.

An attempt was made to toilet-train 103 PMRs in a 10-week training program. The program's objective was to train the entire PMR population and not to demonstrate the effectiveness of

operant conditioning. A successive approximations model using M & M candies as reinforcement was stressed. Applying the concept of successive approximations, residents were trained to use the commode at regular intervals. Training was difficult, since the ratio of attendants to residents never exceeded 1:10. Ss who defecated in their clothing comparatively more often than their peers were assigned to the training instructors, thus facilitating the resident-attendant ratio. The frequency of accidental defecations at the end of the project had been lowered by 59 percent. Decreases in the range of errors in conjunction with fluctuations in the median and mean suggested improvement in most residents, although 12 residents still appeared to be untrained. Soiled linen was reduced by 41.68 percent by the end of the program. An increase in awareness by cottage parents, regular training schedules, and the conditioning procedure all contributed significantly to the progress made. (6 refs.)

Sunland Training Center
Miami, Florida

2585 KIMBRELL, DON L.; LUCKEY, ROBERT E.; BARBUTO, PAUL F. P.; & LOVE, JOHN G. Operation dry pants: an intensive habit-training program for severely and profoundly retarded. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 12, p. 127-136.

A 7-month intensive habit-training and social development program was undertaken with 40 SMR and PMR females (chronological age 5 to 18 years) to teach toilet training and to shape behavior. Nine attendants assigned to the 2 experimental groups of 10 Ss each were instructed in providing an enriched environment, simplifying the environment to meet the needs of training, scheduling daily activities to fit the needs of the individual, encouraging meaningful activities, and utilizing operant conditioning techniques. The 20 Ss in the 2 control units continued in the conventional methods of treatment. There were no statistically significant differences in developmental gains in Vineland Social Maturity Scale scores between the younger and older experimental Ss. By the fifth week of training, the experimental Ss were requiring approximately half the amount of laundry used by the control groups. The frequency of soiling by girls in training decreased significantly ($p<.001$) throughout the study. As a result of the program, Ss in training obtained significantly higher ($p<.05$) social ages than the control Ss on reevaluation and made significant gains in social maturation over the control Ss. (7 refs.)

2586 SPENCER, ROBERT L.; TEMERLIN, MAURICE K.; & TROUSDALE, WILLIAM W. Some correlates of bowel control in the profoundly retarded. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 14, p. 142-148.

Nine SMR and 29 PMR boys (chronological age 4 to 12 years) were Ss in a 6-week training program designed to determine correlates of bowel control in this population. Trained attendants classified each bowel movement of every S for a 15-day period as either spontaneous use of commode, use of commode after being placed on it, or voiding outside of commode. An initial bowel control index was obtained on the basis of these data. During training, attendants placed Ss on the commode 3 to 7 times per day, at the times they usually voided. Food, praise, hugging, and affectionate handling were used as rewards for voiding in the commode. After the training period, the index of bowel control was determined again, and the progress made since the initiation of training was measured. Both before and after training, the index of bowel control was correlated with sociability, emotionality, negativism, leg coordination, seizures, and brain damage. Initial bowel control was correlated positively with sociability and negatively with the other variables. Progress in learning bowel control was not correlated significantly with any of the independent measures, however. (6 refs.)

2587 BALL, THOMAS S.; SERIC, KATHY; & PAYNE, LAWRENCE E. Long-term retention of self-help skill training in the profoundly retarded. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 46, p. 439-448.

A long-term follow-up was conducted of 6 of 7

male SMR and PMR children who had undergone intensive, short-term self-help skill training in 1967. The Ss had received a 90-day period of intensive training involving a simple verbal direction and a sufficient gesture or actual tug to ensure a correct response in the teaching of each skill. Correct responses were reinforced immediately with food plus social reinforcement. At the end of 3 months the Ss were returned to their home wards, where training was never better than sporadic, owing in part to a low staff-patient ratio. Retention of self-help skills was measured independently by means of the Situational Test, which entailed a direct challenge of the Ss' retention of learned responses, and Census Blank ratings, obtained from the attendants most familiar with the patients. The Situational Test indicated that while the significant training gains in Undressing were short-lived, a significant improvement in Dressing did not appear until almost 4 years after the completion of training. The Census Blank data on dressing skills reinforced these findings. (6 refs.)

Pacific State Hospital
Pomona, California

2588 **LEATH, JACK R.; & FLOURNOY, RICHARD L.** Three year follow-up of intensive habit-training program. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 45, p. 433-438.

Three years after 40 PMR and SMR institutionalized girls demonstrated that they were able to make significant gains in social maturation during a relatively brief period of exposure to a combination of behavior-shaping techniques, the social maturational level of 33 of them was reassessed. The primary instruments for measuring behavior change in the initial and reassessment studies were the Vinland Social Maturity Scale and 10 categories of social maturation on a modified version of the Scale. The most serious delimiting factor in the reassessment study was the lack of objective information about what happened on the Ss' unit in the 3-year interval. The present level of social maturation of the 33 girls was compared to their level of social maturation before any training and after intensive habit-training. The results supported the conclusion that a combination of behavior-shaping techniques has positive long-range effects. The only skill or category which did not increase significantly during any of the evaluations was socialization. Communication as reassessed did not differ significantly from the pretraining level. (3 refs.)

2589 **ROBERTS, CARL L.; & PERRY, ROBERT M.** A total token economy. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 44, p. 421-429.

A Total Token Economy program has been implemented which involves the entire Mental Retardation Center in Pueblo, Colorado. The resident population of the Center has an average chronological age of 45 years, an average length of hospitalization of 17 years, and an average social quotient of 37. The system was introduced so that the good things which happened to each resident would be contingent upon specified behaviors. To the extent possible, points and/or tokens are used as immediate, generalized reinforcers (tradable for back-up reinforcement). Points and tokens permit the resident to tell the staff exactly what reinforces him or her. The system involves all residents, all personnel, all programs, all departments, and all wards. The key is the personnel involved with the residents on a daily basis. The behaviors which are reinforced depend, individually, upon where a given resident happens to be with respect to different behaviors. Emphasis is not on punishment of undesirable behavior in the form of the removal of positive reinforcement (tokens) but on bringing about behavior change by giving reinforcers for steps taken in the desirable directions, with the concomitant extinction of undesirable behaviors. (16 refs.)

Colorado College
Colorado Springs, Colorado

2590 **WHALEN, CAROL K.; & HENKER, BARBARA A.** Creating therapeutic pyramids using mentally retarded patients. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 43, p. 408-420.

A project was developed involving the creation of a therapeutic pyramid in which a few professional

therapists would each train a small group of MR patients to act as tutors. Each of these tutors would then work with 2 or more younger patients, thus broadening the base of the pyramid. Three dyads, each consisting of a tutor and a trainee, participated in the study. The 3 tutors were adolescent MRs with IQs ranging from 48 to 54. The trainees were nonspeaking children under 10 years of age whose IQs ranged from 19 to 37. A modeling-reinforcement paradigm was employed on 2 levels: the experimenter used demonstration and reward to teach the tutors how to work with their trainees, and the tutors then used demonstration and reward to teach their trainees basic verbal and nonverbal skills. The results showed clearly that moderately MR patients can learn to use basic modeling-reinforcement techniques to modify the behavior of other MRs. Even MRs with severe motor handicaps functioned as effective tutors. The results demonstrated further that tutors can become increasingly independent and can learn to work with minimal supervision. (22 refs.)

2591 **ROOS, PHILIP.** Development of an intensive habit-training unit at Austin State School. In; Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 42, p. 398-407.

With the need for specialized training programs for SMRs becoming increasingly evident at the Austin (Texas) State School during the past few years, a small pilot project for developing self-help skills was established. An intensive training unit was developed (1) to train SMR children by operant conditioning techniques, (2) to train personnel in the implementation of these techniques, (3) to develop novel procedures and equipment, (4) to stimulate similar programs throughout the institution, and (5) to foster an attitude of optimism in the personnel. All attendants assigned to the unit participated in a 2-day intensive workshop prior to the beginning of the project. Fifteen boys and 15 girls (chronological age 6 to 12 years) were each assigned to a specific attendant on each of 3 shifts who assumed primary responsibility for the training and care of the child, maintained daily records on the child, and completed periodic rating scales. The philosophy underlying the project emphasized approaching the project as a learning situation, making genuine use of the team concept, involving the entire institution in the project, and supporting the project through administrative participation and facilitation. (7 refs.)

2592 **HAMILTON, JOHN; & ALLEN, PATRICIA.** Ward programming for severely retarded institutionalized residents. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 41, p. 393-397.

Three programs were implemented which proved effective in reducing the routine workload of the personnel on a ward of 59 SMR females of all ages. Forty-five residents required prescribed medication from 3 to 5 times daily, and the process of giving each resident her medicine with a cup of water was taking an inordinate amount of time. Toothbrushing presented an ordeal for residents, and oral hygiene was generally poor, despite the fact that attendants were devoting a lot of time and energy to dental care. The amount of inappropriate mealtime behavior resulted in prolonged mealtimes and the need for extra supervision. Three programs were started which all involved the basic operant conditioning principle that consequences of a behavior determine future occurrences of that behavior. Specifically, behaviors which have rewarding consequences tend to be strengthened, whereas behaviors which are not rewarded, or which are punished, tend to be weakened. The positive conditions of social praise and fruit punch and the negative condition of food deprivation were each successful in modifying the selected behaviors. (1 ref.)

Gracewood State School and Hospital
Gracewood, Georgia

2593 **STEVENS, EMILY A.** Some effects of tempo changes on stereotyped rocking movements of low-level mentally retarded subjects. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 39, p. 362-372.

A study was carried out to determine whether or not tempo changes in musical stimuli would affect the tempo and frequency of rocking behavior in 8 male and 4 female SMR and PMR children (chronological age 13 to 21 years). Each S was

observed daily for a 10-minute session to determine his (or her) average frequency and tempo of rocking. Five consecutive days of measurement constituted the baseline period, or Treatment 1. Ss were divided into 3 equal groups according to fast, medium, and slow rocking tempos, and in Treatment 2 a recorded piano march was played which matched the Ss' average rocking tempo. In Treatment 3, all Ss were exposed to the recorded march played 16 metronomic markings (MM) faster than their average rocking tempo, and in Treatment 4 the music was played 16 MM slower than their average tempo. Corrections were made for sequential (order) effects. A significant difference was found among the 3 speed levels on frequency of rocking, which indicated a correlation between the frequency and tempo of rocking movements. Musical tempo produced a significant change in the speeds of the fast and slow rocking groups. (14 refs.)

2494 **FOREHAND, REX; & *BAUMEISTER, ALFRED A.** Body rocking and activity level as a function of prior movement restraint. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 38, p. 356-361.

The effect of a brief period of physical restraint on the subsequent body rocking and general activity level of 6 male SMRs (chronological age 19 to 31 years) was investigated. Twelve daily sessions of 18 minutes each were conducted for each S. Two conditions of measurement were obtained for the Ss during baseline and following restraint. The Wilcoxon signed-ranks test indicated that the average rate of rocking was higher following restraint than during the baseline periods ($p<.025$). The Friedman 2-way analysis of variance by ranks also was applied to the rocking behavior data to determine whether there were differences among the four 4-minute observation intervals occurring within each condition. In the treatment restraint conditions, the fourth interval was associated with less stereotypy than both the first and second intervals ($p<.05$). The Wilcoxon test showed each of the first 3 intervals in both treatment conditions to be associated with more rocking than the same interval in the preceding baseline conditions ($p<.05$). Although general activity rate followed the same trend as body rocking, the Wilcoxon test failed to reach significance. (11 refs.)

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2595 **WARREN, SUE ALLEN; & BURNS, NORMAN B.** Crib confinement as a factor in repetitive and stereotyped behavior in retardates. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 37, p. 347-355.

A study was designed to determine the frequency of a variety of repetitive behaviors in the ward, the natural environment for young ambulatory institutionalized children. Ss were 55 SMRs and PMRs (chronological age 39 to 167 months). These 36 males (65 percent) and 19 females (35 percent) exhibited repetitive behaviors both in and out of the crib on more than one occasion. Ss were observed during twenty 1-minute periods for rocking, sucking, body manipulation, head movements, licking, head banging, object hitting, rubbing/scratching, twirling, biting, complex hand movements, and mouth movements. All Ss, who had been chosen for the study on the basis of having been observed performing one or more repetitive behaviors during the preliminary survey, exhibited the behavior again during at least 1 of the 20 observations. Crib confinement occurred, at various times of day, during 32 percent of the 1,100 observations. Lower rates for certain repetitive behaviors and more object manipulation (play activity) were demonstrated when the children were out of the crib. The correlation between object manipulation and stereotyping was -.23, lower than the -.47 found in the Berkson and Mason (1964) study. (19 refs.)

2596 **MULHERN, THOMAS; & *BAUMEISTER, ALFRED A.** An experimental attempt to reduce stereotypy by reinforcement procedures. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 36, p. 337-346.

Two experiments were undertaken to determine whether the rate of body rocking exhibited by 2 SMR males (chronological age 18 and 29 years) could be reduced by withholding reinforcement until the S sat still for a prescribed period. In the first experiment, hopper lights and reinforcement (M & M candies) were provided after the desired

response was in effect for 4 seconds. An initial increase was found in the activity of both Ss, possibly attributable to frustration deriving from an irregular provision of reinforcement. The rise in the first S's rate was followed by a gradual decrease in activity during subsequent sessions, and the time-without-rocking which was necessary for reinforcement was extended. In the second experiment, an additional discriminative signal was incorporated in order to make the response requirement of sitting still more salient by quickly providing informative stimulus changes. Noise, green lights, and bright house lights were present with activity but ceased following one second of inactivity. Then, in the presence of the hopper lights, the S was required to maintain a still posture for 4 more seconds in order to obtain reinforcement. A trend toward decreased activity was manifested for both Ss. (10 refs.)

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2597 **EDWARDS, MARION; & LILLY, ROBERT T.** Operant conditioning: an application to behavioral problems in groups. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 5, p. 62-66.

Operant conditioning was employed in a limited scope as the treatment modality with a group of assaultive and, for the most part, PMR females who could not be controlled on open or other closed wards by the usual management methods. Satisfaction of the hunger drive was used as the motivation for acceptable behavior at mealtime. In the change from previous procedures, the ward was divided into 3 groups, each to be fed separately. The most acutely disturbed and severely impaired mentally were grouped together for the initial experiment. These 26 patients ranged in age from 14 to 38 years and had IQs of 5 to 25. After 5 weeks of operant conditioning, food grabbing was markedly decreased, and the use of spoons, more leisurely eating, and proper dress were encouraged. Mealtime became the most orderly activity of the day, and long tables were maintained with tablecloths and centerpieces of flowers. Other unacceptable patterns of behavior also decreased in the dining room, apparently in direct ratio to the food-taking from others. The acceptable dining room behavior did not carry over to the other times of the day, however. (8 refs.)

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2598 **GROVES, IVOR D.; & CARROCCIO, DENNIS F.** A self-feeding program for the severely and profoundly retarded: In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 4, p. 55-61.

Behavior modification techniques were used to teach 60 SMR and PMR institutionalized females to eat with a spoon. All but 8 of the residents had IQs below 39; their chronological ages ranged from 13 to 59 years. Twenty-four residents were involved in the project for the entire 14-week period. Twenty of the remaining 36 residents learned to feed themselves well enough to begin going to the dining room before the end of the project. The other 16 residents either were not on the ward at the beginning of the project or were off of the ward for some period due to illness. No residents were eliminated from the program because of failure to improve. In addition to teaching residents how to use a spoon, several other beneficial effects were achieved. Having once accepted the fact that SMRs and PMRs were capable of learning a new and more appropriate response, the staff was able to apply the techniques learned in the feeding program to other areas. At the end of the project the staff was spending less than 15 minutes per meal in cleaning. Health care services also improved. (5 refs.)

2599 **BOULIEW, DUANE, JR.** Do institutions maintain retarded behavior. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 2, p. 26-31.

Historically, SMRs were institutionalized because they were unable to emit behaviors which would have allowed them to function effectively and/or because they were considered eugenically unfit for society. Today, the former reason still underlies the admission of an SMR into an institution. Because of the apparent gap between behaviors required to function effectively in society and the likelihood that those behaviors will be found in the repertoire of the SMR, explanations have been developed to account for such discrepancies. One of these formulations is that the SMR is unduly

dependent and must have things done for him. In a vein which reflects a great deal of optimism, behavior modification has introduced horizons for the SMR whose limits have yet to be reached. The issue to be resolved at present is whether improvement on the part of SMRs is a sufficient reinforcer to maintain the appropriate behavior on the part of those working with the SMRs. (15 refs.)

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2600 **COHEN, JOSEPH D.** Is there a greater incidence of color-vision deficiencies in learning-disabled children? Comments on the test procedures and the findings in original studies. *Clinical Pediatrics*, 15(6):518-522, 1976.

Discrepancies among studies evaluating the color vision of learning-disabled children with the Farnsworth D-15 Panel Test may reflect the particular test procedure employed. Sassoon and colleagues have reported that these children have a greater apparent incidence of "blue decrement" (tritan or yellow-blue deficiency) than do unaffected children when tested with the Farnsworth measure. They also described a developmental trend of apparent decreasing incidence of tritan defects in children from age 3 (53 percent) to age 10 (11 percent); in a comparably tested adult population, the incidence was 10 percent. A number of other studies reported contrasting results, however. Original observations suggest that cross line errors with the D-15 Test on the part of learning-disabled children may not be indicative of a severe color deficiency, as they would be when testing an adult population. These results suggest that the apparent finding of a developmental trend of decreasing color-deficiency frequency with increasing chronological age of children is related to the particular test and test procedures used and is not a biologic phenomenon. (23 refs.)

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2601 **O'LEARLY, K. DANIEL; PELHAM, WILLIAM E.; ROSENBAUM, ALAN; & PRICE, GLORIA H.** Behavioral treatment of hyperkinetic children: an experimental evaluation of its usefulness. *Clinical Pediatrics*, 15(6):510-515, 1976.

A controlled evaluation of a behavior treatment program was carried out for 17 elementary school children attending normal or nonremedial classes who were judged by their parents and teachers to be hyperkinetic. Nine Ss constituted the behavioral treatment group, and 8 Ss made up the control group. The primary treatment consisted of a home-based reward program, which lasted for a 10-week period. Program components included specification of each child's daily classroom goals, praising the child for efforts made to achieve these goals, end-of-day evaluation of the child's behavior relevant to the specified goals, sending the parents a daily report card on their child's daily progress, and rewarding of the child by the parent for progress made towards his goals. Treatment effectiveness was assessed with the standardized Teacher Rating Scale (TRS) and an individualized Problem Behavior Rating (PBR) established for each child. With both measures, the experimental and control groups were essentially equivalent prior to treatment but were significantly different by the end of treatment. Seven of the treated Ss improved $\geqslant$25 percent on the PBR, and 7 of the 8 treated Ss showing improvement on the TRS made gains $\geqslant$25 percent. (19 refs.)

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2602 **HUGHES, PETER S.** Survey of medication in a subnormality hospital. *British Journal of Mental Subnormality*, 23, Pt. 2(45):88-94, 1977.

A study was carried out to define the features of drug prescribing in a hospital for MRs and to determine the extent to which medication was being used effectively. The population studied included all patients within the children's department (219) as well as children under 16 (50). In addition, a large number of adolescent and adult patients (169) was included. There was an overall total of 381 prescriptions made on the day of the survey. Anticonvulsants, major tranquilizers, and minor tranquilizers (primarily Valium) accounted for about 80 percent of the drugs in use. Folic acid and Disipal, given to offset side effects, accounted for another 15 percent, and antidepressants, night sedatives, and barbiturates made up the other 5

percent. Sixty-eight percent of the population was receiving medication, and nearly one-third of these patients was getting 4 drugs or more, one of which was almost certainly a major tranquilizer. Although the data demonstrate a tendency to overprescribe, it is not suggested that the solution is simply to use fewer drugs. However, there should always be a reasonable expectation of benefit to the patient before any drug is administered. (4 refs.)

Harperbury Hospital
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2603 **STRINGER, LORENE A.** Mental health work in children's health centers: learnings from five years' experience. *American Journal of Orthopsychiatry*, 48(1):40-55, 1978.

Experience with the St. Louis County Missouri Program, a 5-year-old EPSDT (Early and Periodic Screening, Diagnosis and Treatment) type outreach program, has illuminated several issues which may be generalizable or adaptable to other outreach programs. Since mental health and physical health cannot rationally be viewed apart from each other in early screening, it is highly advantageous for professionals in both fields to work together in teams, sharing relevant knowledge while using particular skills towards the provision of comprehensive care. Outreach programs in mental health tend to be prevention-oriented, whereas treatment facilities are almost always pathology oriented, and it is extremely difficult to bridge the gap between them. Thus, it is important for outreach personnel to be prepared to offer something more than just screening and referral--specifically, to accept responsibility for ensuring continuity of care, no matter where the care is given. Follow-up must be widely eclectic, strongly supportive, and finely individualized, and the goal of benefiting children should be fulfilled through their parents or parent-surrogates, related to as individuals in their own right. (34 refs.)

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2604 **INGALLS, ROBERT P.** Treatment of behavioral and emotional problems. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook*. New York, New York: John Wiley & Sons, 1978, Chapter 12, p. 285-311.

The three basic ways of treating behavioral and emotional problems with MRs are psychotherapy, behavior modification, and chemotherapy. Psychotherapy refers to any one of a number of techniques and methods which have in common the fact that the client expresses feelings, emotions, and attitudes to a sympathetic listener or group of listeners. Psychotherapy is occasionally used with MRs, although its value with them has never been clearly demonstrated, and many pioneers in psychotherapy, including Freud and Carl Rogers, have indicated that it would be ineffective with MRs. Behavior modification, a method of treatment derived from basic learning principles, focuses entirely on the observable behavior of the child, with little attempt made to postulate inner motivations or other non-observable, mentalistic concepts to explain the behavior. Advocates of this approach assume that most human behavior can be explained by the rewards and punishments in the individual's environment. Behavior modification has been quite successful in incorporating more socially appropriate behavior in MR children and adults and is widely used. Psychoactive drugs, particularly tranquilizers, are also effective in treating emotional problems, but they are ineffective in raising intelligence.

2605 National Health and Medical Research Council (Australia). Report on methods used by the Institute for the Achievement of Human Potential (Oct. 1976). *Australian Journal of Mental Retardation*, 4(6):5-10, 1977.

There are many causes of brain damage in babies and young children, and the manifestations of such damage encompass many forms of both physical and mental handicap. The management of these disorders poses numerous difficult problems for parents, families, and the caring professions. Although the results of treatment may be very rewarding in some cases, progress is often slow, and final outcomes are often disappointing. Several forms of therapy are currently available for different types and degrees of handicap, and no one system is preferable to others. In particular, there is no current scientific evidence that the techniques of the Institute for the Achievement of Human Potential (otherwise known as Doman-

Delacato techniques) and the modifications thereof currently in use in Australia represent any advance in the treatment of the brain-injured child or that these forms of treatment are superior to other methods. Nevertheless, there are certain features of the Doman-Delacato treatment which may be beneficial, but these features are not exclusive to the Doman-Delacato regimen. They can and should be included in any well-planned program of management whenever indicated. (27-item bibliog.)

2606 **HOBBS, STEVEN A.; & LAHEY, BENJAMIN B.** The behavioral approach to "learning disabled" children. *Journal of Clinical Child Psychology*, 6(1):10-14, 1977.

Research on the use of behavior modification to modify the academic problems of learning disabled children is reviewed. The behavioral approach has been demonstrated to be effective in remediating the academic problems of children who have been classified as MR, disadvantaged and underachieving, emotionally disturbed, and normal; however, the number of studies using behavioral techniques with learning disabled children is fewer than those with other populations. Although studies demonstrate that attending behavior of learning disabled children can be increased by means of operant reinforcement procedures, an equivocal relationship was found between changes in attending behavior and increased academic performance. Programs designed for learning disabled children with reading problems produced substantial increases in reading performances. Positive reinforcement techniques were associated with improvement in the modification of other academic skills such as math, letter identification, and handwriting. These results demonstrate that high levels of activity can be controlled in the classroom without medication and that the academic performance of learning disabled children can be modified without focusing on specific attention problems, perceptual difficulties, or activity levels. Most objections raised in opposition to the behavioral approach revolve around the use of consequences contigent upon the client's behavior. (62 refs.)

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2607 **JOHNSON, JAMES H.; & VAN BOURGONDIEN, MARY E.** Behavior therapy and encopresis: A selective review of the literature. *Journal of Clinical Child Psychology*, 6(1):15-19, 1977.

The general nature of encopresis in childhood is discussed, and published studies which have employed behavioral therapy in treatment are reviewed. Behaviorists produced successful results with a variety of operant procedures, such as positive reinforcement, negative reinforcement, punishment, and extinction. Combination procedures included positive reinforcement with extinction, positive reinforcement with punishment, and reinforcement with mild punishment and cathartics. These studies consist largely of uncontrolled case reports, but seem to provide tentative support for the usefulness of behavioral procedures in the treatment of encopresis and illustrate the diverse ways in which operant procedures may be employed. But careful assessment, including examination for physiological factors, analysis of level of soiling and context in which it occurs, as well as nature of the consequences, is necessary for successful treatment.

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2608 **HOBBS, STEVEN A.; & GOSWICK, RUTH ANN.** Behavioral treatment of self-stimulation: An examination of alternatives to physical punishment. *Journal of Clinical Child Psychology*, 6(1):20-23, 1977.

Descriptions in the literature of the use of 3 alternative behaviorial treatment methods in reducing self-stimulatory, as opposed to self-injurious, behaviors in MR and autistic subjects are reviewed. Behavior therapies considered are withdrawal of positive reinforcement following self-stimulation; positive reinforcement of nonself-stimulatory behaviors; and overcorrection. The combination of positive reinforcement for functional responses with deceleration techniques such as extinction or overcorrection may provide the most effective means of reducing self-stimulation and teaching appropriate behaviors. But further investigations of behavioral changes over time are necessary before any one method can be considered preferred. (14 refs.)

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2609 **BRUNDAGE-AGUAR, DIAN; *FOREHAND, REX; & CIMINERO, ANTHONY R.** A review of treatment approaches for hyperactive behavior. *Journal of Clinical Child Psychology*, 6(1):3-9, 1977.

Treatment approaches for hyperactive behaviors in children are reviewed. Major problems in evaluating the effectiveness and desirability of any one of the major treatment approaches are: current research has not yet provided conclusive evidence for any etiological perspective; comparable samples of hyperactive children based on objective criteria are hard to identify; prediction and diagnosis of hyperactivity based on physiological and psychological measures have been unsuccessful; and there are no norms available for determining normal versus abnormal activity level. The most frequently used approach, chemotherapy with psychostimulant drugs, may produce negative side effects and fails to affect scholastic achievement. Behavior modification, including reinforcement of alternate behavior, withdrawal of positive reinforcement, punishment, and parent programs, is the primary nonmedical approach. But behavior modification studies usually include small sample sizes; classroom studies are limited to the examination of treatment effects on decelerating hyperactive behavior; and follow-up data have seldom been collected. (105 refs.)

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2610 **MURRAY, MICHAEL E.** Behavioral management in pediatrics. Applications of operant learning theory to problem behaviors in children. *Clinical Pediatrics*, 15(5):465-470, 1976.

The operant learning theory can successfully be used by all parents to control their children's behavior. The basic principle in using this approach is to have the child understand that there are immediate consequences to his behavior. Positive reinforcement should be an essential part of these consequences when training the child in correct behavior. Reinforcement must be consistent if it is to be effective. Behavioral management techniques can be useful in handling tantrums, destructive behavior, toilet training, and nocturnal enuresis. Punishment may be a necessary adjunct to positive reinforcement but it must be recognized that punishment may have other than the desired negative effects on the child. The physician may be helpful to the parent in advising what might be realistic expectations for the child. (10 refs.)

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2611 **KURTZ, P. DAVID; & NEISWORTH, JOHN T.** Self control possibilities for exceptional children. *Exceptional Children*, 42(4):212-217, 1976.

Behavior modification and training material research have focused on techniques in which the locus of control rests solely with an external change agent when attempting to change behavior in MRs. However, there has been recent interest in having the person control his own behavior. With growing emphasis on normalization for handicapped children, self control techniques may be particularly pertinent and desirable. There are 3 self-control strategies that appear to have immediate implication for handicapped children: cue regulation, self-reinforcement, and self-observation. The self-control approach provides the child with the opportunity to control his own behavior and may yield increased generalization and maintenance of behavior change. There has also been a change in emphasis from treating specific problems to training individuals in general problem solving strategies that can be applied to future problems. (31 refs.)

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2612 Integrating child psychiatry. *Lancet*, 1(8015):789-790, 1977.

Owing to confusion and overlapping roles and services in the United Kingdom's hospitals and child-guidance clinics, the Court committee on the

measure of emotional disorder in British children has proposed in their report that the child psychiatric service should be integrated. This recommendation would amalgamate the hospital clinic, specializing in behavioral disorders, sleep disturbances, and feeding difficulties, with the child guidance clinics oriented towards learning disorders, suspected educational subnormality, conduct disorders, and school phobia. The Court recommendations include increases in professional clinic staff (child psychiatrists, psychologists, and social workers) and redeployment of existing staff. The Court scheme represents psychosomatic collaboration at its best, by retaining ultimate medical responsibility in a sphere of clinical practice where much overlapping exists with developmental medicine, subnormality, child neurology, physical handicap, and pediatrics generally.

PROGRAMMATIC ASPECTS — Planning and legislative

2613 FRIEDMAN, PAUL; & BECK, RONNA LEE, eds. Mental retardation and the law: a report on status of current court cases. *Resources in Education (ERIC)*, 12(7):79-80, 1977. 26 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED135186.

Eleven new court cases and updated information on 35 court cases involving the MR are presented. The following issues are covered; architectural barriers, commitment, criminal law, education, employment, guardianship, protection from harm, sterilization, treatment, and zoning. Included in the information on each current case are the state involved, the cases title, and a brief summary of the action.

2614 Georgetown University. The Georgetown Adolescent Intervention Team: tri-state technical assistance and training project. *Resources in Education (ERIC)*, 12(7):77, 1977. 14 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135165.

The program of the Georgetown Adolescent Intervention Team (Washington, D.C.), which provides interdisciplinary evaluations and diagnoses and identifies appropriate alternative placements for developmentally disabled juvenile offenders 10-16 years and older is described. The description includes a review of procedures for dealing with the juvenile offender, establishment of the program, the program's relationship with local agencies such as the juvenile justice system, and the development of an interdisciplinary training and technical assistance program with planning, training, and replication phases.

2615 Unbiased assessment: guidelines, procedures, and forms for the SEA's implementation of Pubic Law 94-142. Salt Lake City, Utah: Southwest Regional Resource Center, 1977. 46 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED138024.

Forms, procedures, and guidelines for implementation of nondiscriminatory assessment practices with handicapped children and adults are provided for personnel in State Educational Agencies. The introductory section provides a model for establishing the relationships between various components of an unbiased assessment system within which all Public Law 94-142 categories can be identified. In Section II child process activities are delineated: 1) locate, identify, refer, and diagnose; 2) establish and implement educational services through the use of individualized educational programs; and 3) review and evaluate the effects of the treatments provided to remove or ameliorate the effects of handicapping conditions upon the educational development of children and adults requiring special assistance. Section III covers a comprehensive unbiased assessment format, procedures, and instrumentation recommendations; a suggested program for reviewing unbiased assessment with professional staff; and some illustrated types of assessment. Section IV focuses on professional development in terms of ways to address related components of an alternative unbiased assessment system, an alternative unbiased assessment center, and organizational guidelines. Also provided are forms, diagrams, checklists, and a selected bibliography with 84 entries on alternative and unbiased assessment.

2616 BERRY, MARY F. *Statement by Dr. Mary F. Berry, Assistant Secretary for Education, Education Division, Department of Health, Education, and Welfare. Resources in Education (ERIC)*, 12(9):78, 1977. 12 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED138023.

The extension of the various discretionary grant programs of the Education of the Handicapped Act are examined. Discretionary programs are reviewed in relation to the Education for All Handicapped Children Act (Public Law 94-142) in the areas of special programs for children with specific learning disabilities; instructional media for the handicapped; research in education of the handicapped; training personnel for the education of the handicapped; and centers and services to meet special needs of the handicapped.

2617 **ROEDERER, DOUG.** State responsibilities to the mentally disabled. Lexington, Kentucky: Council of State Governments, 1976. 38 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED138013.

A report designed for state administrative officials focuses on legal issues involved in treatment and deinstitutionalization of mentally ill and MR persons. Definitions and available services for the 2 populations are reviewed in an historical overview. The implications of significant court decisions are considered for cases involving right to least restrictive alternative, right to treatment, right to liberty, right to education, and rights of hospitalized patients in institutions. The issue of deinstitutionalization and successful approaches in Connecticut and Virginia are also examined.

2618 **BURKE, PHILIP J.; & SAETTLER, HERMAN.** The Division of Personnel Preparation: how funding priorities are established and a personal assessment of the impact of PL 94-142. *Education and Training of the Mentally Retarded*, 11(4):361-365, 1976.

The process of determining what federal priorities are in relation to the preparation of personnel for the education of handicapped children is a complex responsibility involving input from many individuals and groups to the Division of Personnel Preparation. The end result is a firm foundation on which to base crucial decisions concerning the provision of federal funds to assist institutions and agencies in meeting their training needs. The priorities for the 1977-1978 academic year include personnel preparation projects in the areas of early childhood education, the severely handicapped, paraprofessionals, physical education, recreation, interdisciplinary involvement with handicapped children, general special education, vocational and career education, regular education, developmental assistance, model implementation, and preparation of volunteers. The establishment of well-considered priorities has been given added importance by the challenge to educators at all levels in implementing the new Public Law 94-142 Amendments to the Education of the Handicapped Act.

Special Projects and Comprehensive
Programs Branch
Division of Personnel Preparation
Bureau of Education for the Handicapped
U.S. Office of Education

2619 Developmental disabilities program: proposed policies and procedures regarding grants to states, nonprofit agencies, organizations, colleges and universities. Part II. *Resources in Education (ERIC)*, 12(1):52, 1977. 19 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83, plus postage (HC not available from EDRS). Order No. ED127759.

The Developmentally Disabled Assistance and Bill of Rights Act of 1975 (Public Law 94-103) is discussed in terms of its proposed policies and procedures pertaining to grants to States, nonprofit agencies, organizations, colleges, and universities. Policies and procedures which apply to administrative concerns are discussed under "general provisions." The section on formula grant programs encompasses 4 basic subparts: State plans; State planning councils; protection and advocacy of individual rights; and establishing the practice and procedure for hearings pertaining to the State conformity with State plans and Federal requirements for the developmentally disabled. Special project grants and university affiliated facilities, including demonstration and training grants and construction programs, are discussed in a section on a proposed discretionary grants program.

2620 Normalization – mentally retarded. A selective bibliography. Exceptional Child Bibliography Series No. 683. Reston,

Virginia: Council for Exceptional Children, 1976. 28 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED129006.

A bibliography on normalization--mentally retarded contains approximately 100 abstracts and associated indexing information for documents or journal articles selected from the computer files of the Council for Exceptional Children's Information Services and the Education Resources Information Center (ERIC), and published from 1968 to 1975. Each abstract includes bibliographic data, descriptors indicating subject matter covered, and a summary of the document's contents. Instructions are provided for using the bibliography, and a list of journals from which articles were abstracted is included. An order form is provided for ordering paper or microfiche copies from ERIC Document Reproduction Service.

2621 **MARLETT, NANCY J.** Normalization, integration, and socialization. In: Das, J. P.; & Baine, D., eds. *Mental Retardation for Special Educators*. Springfield, Illinois: Charles C Thomas, 1978, Chapter 13, p. 259-279.

Normalization is an operational philosophy advocating the provision of opportunities for growth within a normal life style as an alternative to institutionalization. According to Nirje, the tenets of normalization include a normal daily rhythm, a normal life routine, a normal yearly rhythm, normal developmental experiences, the chance to make one's own choices, the right to develop sex identity, the right to normal economic standards, and the right to live, work, and play in a normal society. The acceptance of a set of values is only the first step in implementing value-oriented services. Normalized services do not happen automatically; a prerequisite is the preparation of the families and the community. The family unit is the keystone to any successful normalization program, and it must be strengthened in order to cope with the additional stress it receives. As the process of institutionalization is reversed and more handicapped people return to seek acceptance within the community, a great deal must be done to ensure that the increase in public consciousness does not turn into public concern. Staff preparation is also essential. (37 refs.)

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2622 **DOKECKI, PAUL R.** Mental retardation: the labelling perspective. In: Das, J. P.; & Baine, D., eds. *Mental Retardation for Special Educators*. Springfield, Illinois: Charles C Thomas, 1978, Chapter 12, p. 247-258.

The purpose of labeling is to help with communication, but labels such as MR have unfavorable effects, since they indicate that the individual is a misfit. Social and political considerations are very important in making a decision to use an existing label or in creating a new one. The research literature on labeling is only minimally helpful for deciding whether or not and how to label MR children. The confusion surrounding the problem of labeling derives from researchers' failure to separate conceptually the confounded effects of self-contained classes for MRs and the presumed effects of labeling, on the one hand, and the heavy reliance on culturally biased tests used for labeling purposes, on the other. Current intervention approaches, whether at the level of the child, family, school, or public policy, seem to require a careful conceptual analysis and a synthesis of the thinking of the best minds in the field. Handicapped children can best be served by labeling them as those who require special assistance and those who need prolonged assistance. The aim of intervention should be to achieve the best fit between the child's needs and environment. (21 refs.)

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2623 **CLELAND, CHARLES CARR.** Historical issues. In: Cleland, C. C. *Mental Retardation: A Developmental Approach*. Englewood Cliffs, New Jersey: Prentice-Hall, 1978, Chapter 12, p. 271-282.

Enormous signs of progress as well as signs of new challenges face workers in the field of MR. The issue at present is to sustain and accelerate the progress and to continue to focus on recurrent problems in the field. Personnel, money, and materials, all in a proper mix of quantity and

quality, will be a major force in progress or its absence. Participation by a greater diversity of disciplines affords one avenue of accelerating progress and is gradually coming into being. It is too early to predict the outcome of the current debate over public participation in scientific affairs, a byproduct of both the extension of rights to MRs and the rise of consumer-oriented groups; however, the movement for public participation appears to be gaining strength. In the field of MR, research nonscientists are already serving on research review committees, and such a greatly expanded disciplinary involvement should foster new insight. The future of the volunteer in MR depends upon administrative and professional ingenuity in assigning them challenging, interesting, and rewarding roles. With huge amounts of taxpayer dollars being spent, care must be taken to ensure wise selection of personnel and good business practice. (17 refs.)

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2624 **CLELAND, CHARLES CARR.** Neglected retardates. In: Cleland, C. C. *Mental Retardation: A Developmental Approach*. Englewood Cliffs, New Jersey: Prentice-Hall, 1978, Chapter 9, p. 195-226.

PMRs and bedridden MRs have been grossly neglected, and future research strategies must embody an effort to map out their preferences, choices, and mood states in every sensory and social context in order to ensure these MRs the quality of life which they deserve. Technological advances and a veritable renaissance of interest in MR since about 1960 notwithstanding, these subgroups of MRs have largely failed to share the gains made by other MRs. Knowledge of PMRs' territorial defense and "language" and of the stimuli needed by bedridden MRs is limited. Among the most promising current-day intervention strategies is some knowledge of which reinforcers work with PMRs. Strategies of relieving, removing, and preventing frustrations must also be developed. The large number of self-mutilators seen among PMRs suggests that intropunitive behavior is their main safe outlet for frustration. Undoubtedly, the bedridden have a boring existence whatever their intellectual level, and PMRs are, except in the most advanced institutions, in little better straits. (73 refs.)

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Austin, Texas

2625 **STEPHENS, BETH.** President's message: humane service systems for mentally retarded citizens. *Education and Training of the Mentally Retarded*, 11(2):99-100, 1976.

In the recent report made by the President's Committee on Mental Retardation concerning the nation's needs in the areas of prevention and treatment of MR through the year 2,000, services to MRs are defined under the headings developmental, supportive, and protective services. Because development is a life span process, there is a need for continued training and learning in order to prepare for the ensuing stages of life. Viewed in this light, continuing education is a developmental service. Information on supportive services which supplement, bolster, and extend educational efforts should be readily available, and access to and continuity of these services should be assured. Protective services probably will be influenced by an expected future requirement that major decisions concerning an MR will be made only by this person or an authorized agent. Thus, choice of services and the right to change service agencies would reside in the MR or his agent rather than in the agencies or institutions which are suppliers. The need to develop means for determining long-range manpower requirements is viewed as immediate if there is to be an adequate supply of agents trained in the direct delivery of humane services.

2626 **SPENCER, D. A.** Mental handicap and the Mental Health Act. *Lancet*, 2(8036):502-503, 1977. (Letter)

The pros and cons of excluding MR from revised mental-health legislation considered in the 1959 Mental Health Act are discussed. Inclusion of MR in the Act might serve to equate MR with psychiatric disorder. It is suggested that medical surveillance of some if not all MRs in or outside of a hospital is a positive preventive health measure and assists them in their daily lives. Some protection and safeguards for the MR, their families, and those who work with them would be needed if MR were to be excluded from mental health legislation. In the absence of legislation designed to meet the special needs of the MR,

some specific rights that should be incorporated into guidelines for a code of good practice in their service are recommended.

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2627 **JACOBS, FRANCINE H.; & WALKER, DEBORAH KLEIN.** Pediatricians and the Education for All Handicapped Children Act of 1975 (Public Law 94-142). *Pediatrics*, 61(1):135-137, 1978.

The new law for handicapped children (PL 94-142) requires that any state receiving funds through PL 94-142 provide a "free appropriate public education" for each resident handicapped child, and protect the procedural rights of parents and children in the receipt of these special educational services. Some of the areas covered in the legislation are eligibility, ages for service, procedures for service, definition of least restrictive environment, related services (such as transportation, speech therapy), and protection of the rights of children and parents. The role of the pediatrician, services to children, and policy formation are also discussed. (12 refs.)

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PROGRAMMATIC ASPECTS — Community

2628 *Assessment of Selected Resources for Severely Handicapped Children and Youth. Volume 3: Data Analysis and Results*. Cambridge, Massachusetts: Abt Associates, Inc., 1976. 382 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $20.75, plus postage. Order No. ED134616.

The characteristics, quality, and costs of services to severely handicapped children and youth in 100 providers across the nation are described, along with the development of data collection instruments and a mail survey of potential providers of services to severely handicapped children and youth. The survey was conducted to create a pool of providers from which 100 facilities could be selected for site visits. From the 1,550 respondents to the mail survey, 100 providers were selected who serve severely handicaped clients aged 21 or under. This selection was accomplished by grouping the respondents into 8 sampling categories according to the number of clients they served and to whether they served a majority of clients who are either severely MR, severely emotionally disturbed, severely multiply handicapped, or deaf-blind. Some providers selected served a mixed severely handicapped population. The volume also includes discussions of the procedures and methodology used in conducting the study; characteristics of the 100 providers; client observations; cost of services; the relationship of expenditure and quality; a summary of major findings; and specific policy questions and suggestions based on the present data base and/or the expertise of project staff.

2629 **CONWAY, A.** Normalization: a beginning without an end. *Education and Training of the Mentally Retarded*, 11(4):341-345, 1976.

Normalization is a worthwhile goal with a long history. In Belgium, for example, MRs have almost without exception been housed with their families as a tradition for centuries, and there has been a marked preference for home care in other European countries as well. In America, authorities showed an inclincation towards returning MRs to a more natural environment even before the Civil War. This country's inability, or refusal, to deal with the very real sexual needs of MRs has been the primary impediment to every far-sighted ideological proposal since the advocacy of community placement in the 1850's, however. Sterilization was advocated as a permanent remedy, and, from 1915 until the 1960's, commitment of MRs gradually evolved from

voluntary to involuntary status. It was not until the 1960's that an interest in releasing institutionalized MRs into the community for alternative care was seen. Normalization is a valuable aim, and as such it should not allow itself to be subjected to the criticism it provokes through its failure to address the question of sexualization in a realistic way. The easiest part of the complex process of normalization has begun; what is needed now is a more detailed articulation of its ends. (15 refs.)

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2630 Massachusetts. State Commission on the Legal and Civil Rights of the Developmentally Disabled. *The Developmentally Disabled: Civil Rights Issues. Final Report*. Boston, Massachusetts, 1976, 102 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $6.01, plus postage. Order No. ED132746.

The final report of the Massachusetts Commission on Legal and Civil Rights of the Developmentally Disabled describes the civil rights problems of the developmentally disabled, actions taken to correct problems, and recommendations made for future actions. Specific problems addressed include: (1) Self-determination and financial security, particularly in regard to the representative payee system of the Social Security Administration; (2) Problems connected with medical consent and the treatment and care of persons in state institutions for the MR; (3) Zoning and financing difficulties obstructing the placement of developmentally disabled persons in community residences; (4) Securing equitable treatment in the criminal justice system for MR offenders; and (5) The need for a permanent advocate to promote Commission efforts. Appendixes, comprising about one-half of the report, include a sample questionnaire for representative payee investigation, petition and memorandum put before the Secretary of Health, Education and Welfare, proposed amendments to the Social Security Act (HR13195), Personal Fund Bills (S. 478 and S. 480), the Medical Consent bill, the Zoning Bill for Community Residences, and the Massachusetts Housing Finance Agency addition to the Community Residences Bill.

2631 HARRISON, SUSAN B.; & JOHNSON, MERRILL. *Establishing Services for the Severely Handicapped in Public Schools.* Washington, D.C.: Bureau of Education for the Handicapped, 1976. 276 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $15.39, plus postage. Order No. ED129034.

A manual compiled by the Southwest Regional Resource Center, Salt Lake City, Utah, identifies the steps required to establish services for severely handicapped children in a public school setting. Included are 7 planning elements (population baseline, appraisal resources, schools and physical facility resources, transportation, financial resources, staff resources, and community service resources); 9 implementation elements (utilization and application of appraisal, student placement match, structure of instruction, staff utilization and implementation, instructional program methodology, program curriculum, adaptation of facilities and equipment, parents, and evaluation); and 3 augmentation elements (distention, extension, and expansion). Each element is discussed utilizing the following format: definition and delimitation of element, statement of rationale for inclusion, identification of component points, specification of activity-related outcomes, outline of task analysis, inventory to assess needs, and bibliography of pertinent documents. Most elements include supplementary material (definitions of terms, forms, charts, case studies, and formats for workshops).

2632 Coordinating Office for Regional Resource Centers, Lexington, Kentucky. *Early Childhood Programs for the Severely Handicapped.* Washington, D.C.: Bureau of Education for the Handicapped, 1976. 422 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $22.09, plus postage. Order No. ED129039.

Reference material obtained from responses to questionnaires on 25 early childhood programs for severely handicapped children is presented. Program reports consist of a program abstract and summary, identification and screening procedures, diagnostic procedures, prescriptive procedures, child progress evaluation, parent services, in-service

programs, public awareness, and books, articles, and publications. Appended materials include matrixes of program resources for the PMR, SMR, severely emotionally disturbed, and multiply handicapped; lists of products for identification and screening, diagnosis, prescription, and child progress evaluation; and information on additional programs providing services to preschool severely handicapped children.

2633 **COHEN, RICHARD M.** A community psychology approach to developmental disabilities. In: Feingold, B. A.; & Banks, C. L., eds. *Developmental Disabilities of Early Childhood.* Springfield, Illinois: Charles C Thomas, 1978, Chapter 14, p. 172-178.

The community psychology/community mental health approach to developmental disabilities emphasizes conceptualizations, avoidance of the isolation of individuals through labeling, equal (if not greater) importance of environmental factors as of intrapsychic and internal determinants of disability, and some treatment variant based upon normalization principles. Central to such an approach would be efforts to maintain the disabled individual in a social system as close to the norm as possible or to intervene within the existing systems in ways which permit greater inclusion of this individual in the mainstream. The priorities of The Joint Commission on Mental Health and Children reflect emphases on prevention, social environmental factors, and a systems approach. A system may refer to interaction within a marital or family unit or an entire population or to interaction between an individual and a community institution. The most important concepts of the systems emphasis are the complex person assumption, the problem area concept, the concept of system assignment, and the concept of intersystem accommodation. Six levels of intervention have potential applicability to the developmentally disabled person. (6 refs.; 4-item bibliog.)

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2634 **CLELAND, CHARLES CARR.** Community living: rights, responsibilities and problems. In: Cleland, C. C. *Mental Retardation: A Developmental Approach.* Englewood Cliffs, New Jersey: Prentice-Hall, 1978, Chapter 8, p. 181-194.

The mildly and moderately MR are, by virtue of their numbers and possibly their vote, a group coming into their rights, and this progress is bringing with it new responsibilities and challenges. While numerous advocates have indicated the ability of MRs to work, marry, vote, procreate, and even their right to fail, nowhere has their right to serve their country or to volunteer for the armed services been mentioned. To avoid taxpayer revolt, backlash, and a swing of the pendulum back to poverty-level funding, great responsibility and accountability need to be exercised by leaders in the field of MR. Normalization, broadly conceived, implies risk. Certain approaches can ensure greater success in the mainstream. Good physical health is a major ingredient in maintenance of independence and emotional buoyancy. Continuing education can help MRs to remain in independent living situations in the community, and supportive services and reference groups can ease the adjustment to independence and the accompanying crises. (22 refs.)

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2635 **CLELAND, CHARLES CARR.** Adulthood. In: Cleland, C. C. *Mental Retardation: A Developmental Approach.* Englewood Cliffs, New Jersey: Prentice-Hall, 1978, Chapter 5, p. 109-129.

Health maintenance and the provision of recreation, steady jobs, and a regular income will go far toward helping society to mainstream the mildly MR and toward actualizing their potential. Certain possibly overlooked areas of health could be instrumental in a better adjustment for MRs. Work and rest in proper balance are further insurance for maintaining a feeling of self-worth among MRs. While work is of great value to the adult MR, recreation is a subject which is receiving increasing attention in MR circles. Every individual wants feedback on how well he or she is doing on the job. The difference between the intelligent adult and the MR adult insofar as feedback is concerned is a matter of time, with the MR being impatient to get feedback immediately. Perhaps one major consideration in helping MRs through difficult times, making complex decisions for them, and providing them with knowledge of where they stand is to hold more closely to developmental principles. The challenges of adulthood are numerous, and normalization and mainstreaming

will require a variety of supportive services if they are to succeed. (48 refs.)

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2636 **CLELAND, CHARLES CARR.** Old age. In: Cleland, C. C. *Mental Retardation: A Developmental Approach.* Englewood Cliffs, New Jersey: Prentice-Hall, 1978, Chapter 6, p. 130-140.

Self-actualization, humanization, and normalization can be attained by the elderly mildly MR if they receive advance preparation for old age and if pleasant surprises are provided through thoughtful planning. Just as the noninstitutionalized MR of preretirement age has a wide choice of living accommodations, so does the elderly MR. The MR living in the community faces a variety of adjustments following retirement, but proper preparation can minimize the problems. Prior to retirement, employers or evening schools could offer some specifics on how to cope with retirement issues. The training may have to be highly specific for the MR living in his or her own home. The elderly tend to avoid physical exercise, yet some exercise is essential to total health. Institution of a token economy system might provide an inducement to the elderly mildly or moderately MR in community facilities to participate in certain approved physical activities. As in childhood, a surprise visit from friends or relatives, an unexpected gift or letter, or a phone call are arousing and emotionally exciting and are greatly valued by all elderly people.

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2637 **CLELAND, CHARLES CARR.** Societal responsibilities and recent developments. In: Cleland, C. C. *Mental Retardation: A Developmental Approach.* Englewood Cliffs, New Jersey: Prentice-Hall, 1978, Chapter 13, p. 283-294.

Despite the great progress which has been made on behalf of MRs, changing social conditions could make their adjustment in the community more difficult than was true even a decade or two ago and are necessitating a curriculum for the mildly MR which emphasizes both the rights and responsibilities of being a good citizen. The fact that urban centers are faced with rising crime argues that some curricula should address not only the benefits enjoyed by good citizens but also the risks, least society be carried away with the optimism of community placement and its rewards to the MR. Many metropolitan newspapers carry notices of legal aid to low-income families, of sheltered workshops for MRs, and appeals for citizen advocates to serve as friends and benefactors to MRs. While the role concept 'defective' leads to certain privileges, it also brings about certain punishments. To help ensure the MR citizen the best chance of handling social problems, curricular modifications must be made. To provide balance, taxation, military service, and other less frequently sought-after aspects of being a citizen also will require attention in the curriculum. (31 refs.)

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2638 **INGALLS, ROBERT P.** The mentally retarded adult. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook.* New York, New York: John Wiley & Sons, 1978, Chapter 17, p. 403-439.

Research on what happens to children labeled mildly MR after they leave school has shown consistently that most are able to lead independent, productive lives, but follow-up studies of TMR children have painted a far less optimistic picture. Most mildly MR adults marry and are able to get and hold a wide variety of jobs, including some which require a good deal of skill. Many own their own homes. Only a small percentage of people with IQs below 50 are able to live independently or are even successful at obtaining and keeping competitive employment, however. Society's traditional solution to the problem of MRs who could not live independently was to institutionalize them, but the large state residential institution has received such intensive criticism that it now has few supporters. Most states have an active deinstitutionalization program. This policy can be effective only if the local communities are able to provide good programming for the kinds of people who used to be institutionalized. Community placement comprises not only provision of living accomodations but also provision of vocational training and availability of activity centers for the more severely handicapped. (33 refs.)

2639 Plans for the mentally handicapped. *Lancet* 1(8026):1375-1376, 1977.

The creation of community mental handicap teams is considered the most important policy recommendation from the National Development Group for the Mentally Handicapped in England. The teams will be built around a corps of 2 or 3 full-time professionals who would call on a wide range of other professional help as required. Their functions would be to act as the first point of contact for families with MR members and coordinate all services. It is stressed that no child or adult should remain in a long stay hospital unless he requires services that only that hospital can provide and that those admitted for short term care do not become long term residents because of lack of other accomodations. (1 ref.)

PROGRAMMATIC ASPECTS — Residential

2640 **MARTIN, GARRY L.** The future for the severely and profoundly retarded: institutionalization, normalization, Kin Kare, foster homes. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 3, p. 32-47.

Although Wolfensberger sees institutions for MRs as fading away and has long promoted anti-institution and pro-normalization attitudes, a new role for institutions appears to be emerging. The normalization model is an import which will require considerable modification in the context of developing integrated services for MRs, including a strengthening of the institutional role as backup and policy planner for the community outreach. A behavior modification analysis as well as the available empirical evidence currently being gathered in residences like Kin Kare suggest that institutions such as the Manitoba (Canada) School for Retardates will be necessary for many years to come as sources of initial training for staff and residents who will be transferred together to community residences, as centers for diagnostic and assignment services, and as sources of maintenance contingencies in terms of staff reinforcement and support and professional consultation. Foster home placement may be appropriate in some cases, but Kin-Kare-type MR family homes generally are more advantageous. (23 refs.)

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2641 **GORTON, CHESTER E.; & *HOLLIS, JOHN H.** Redesigning a cottage unit for better programming and research for the severely retarded. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 40, p. 377-392.

A system of care, treatment, and training for the SMR residents at Parsons (Kansas) State Hospital and Training Center was developed when it became evident that the procedures being used were not producing the desired results. A living unit housing 18 PMR girls (chronological age 6 to 12 years) was designated as an experimental cottage and was modified architecturally. Training was begun with a series of 12 semiweekly classroom meetings designed to provide information to aides concerning the research project. Even though a systematic training program for the children has not yet been established, the aides have become more effective, and the children's general appearance has improved. Research staff members have cooperated with cottage personnel in attempts to apply principles derived from laboratory research to the training and management of children. Feeding training has proved successful with all 18 girls. Studies of the effects of food and social reinforcers on the performance of perceptual motor skills, the effects of social and nonsocial stimuli on behavior, communication behavior, social dominance, and differential responses to social stimulation have also been carried out using the girls as Ss. (7 refs.)

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2642 **O'CONNOR, GAIL.** *Home Is a Good Place: A National Perspective of Community Residential Facilities for Developmentally Disabled Persons.* (AAMD Monograph, Number 2.) Washington, D.C.: AAMD, 1976, 92 p. (Price unknown.)

A report of a nationwide descriptive study of the nature and operations of community residential facilities which provide homes for the developmentally disabled, including MRs, is presented. A large-scale view of the existing facilities is provided, with methods of estimating population parameters from sample statistics applied to facilities as well as people. (50 refs.; 155-item bibliog.)

CONTENTS: Introduction; Methodology; Description of Community Residential Facilities; Establishment of Facilities; Management of Facilities; Community Services; Residents; Summary and Recommendations.

2643 **O'CONNOR, GAIL.** Introduction. In: O'Connor, G. *Home Is a Good Place: A National Perspective of Community Residential Facilities for Developmentally Disabled Persons.* (AAMD Monograph, Number 2.) Washington, D.C.: AAMD, 1976, Chapter 1, p. 2-5.

Normalization for the institutionalized developmentally disabled means the development of good community residential placement facilities and services. The availability of the many special services required by the severely developmentally disabled has always been a critical factor in residential placement, and the lack of suitable special living arrangements and availability of special services in the community has been a major difficulty in maximizing the habilitation and social functioning of developmentally disabled people. With increasing numbers of developmentally impaired going into community facilities, concern has been expressed quite rightly about the quality of life and the potential risks of such placement. The profile of community residential facilities and their residents obtained from the study of these facilities describes the placement of the developmentally disabled throughout the United States during the period 1972 to 1974.

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2644 **O'CONNOR, GAIL.** Methodology. In: O'Connor, G. *Home Is a Good Place: A National Perspective of Community Residential Facilities for Developmentally Disabled Persons.* (AAMD Monograph, Number 2.) Washington, D.C.: AAMD, 1976, Chapter 2, p. 6-15.

The nationwide descriptive study of community residential facilities for the developmentally disabled, funded by the Rehabilitation Services Administration of the U.S. Department of Health, Education, and Welfare and awarded in 1972 to the Rehabilitation Research and Training Center in MR at the University of Oregon, was conducted in two major phases. Phase I was a nationwide mail survey of facilities, the major purposes of which were (1) to identify the population of community residential facilities serving developmentally disabled individuals throughout the U.S., (2) to characterize this population, and (3) to provide the population base and stratifier information from which to select the sample of facilities to be included in the second phase. Phase II consisted of structured in-depth personal interviews of a stratified random sample of facility operators/managers. The interview questionnaire was developed on the basis of a variety of inputs. Westat, Inc. of Rockville, Maryland was awarded the contract for the actual interviewing.

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2645 **O'CONNOR, GAIL.** Description of community residential facilities. In: O'Connor, G. *Home Is a Good Place: A National Perspective of Community Residential Facilities for Developmentally Disabled Persons.* (AAMD Monograph, Number 2.) Washington, D.C.: AAMD, 1976, Chapter 3, p. 16-22.

The findings from the 1972-74 nationwide descriptive study of community residential facilities (CRFs) for the developmentally disabled show a wide distribution of CRFs across the United

States, with 6 states accounting for half of these facilities. Most commonly, the CRF was a fairly large home built more than 20 years ago in a residential area or in a combined residential-small business area. Most of them were either within walking distance to shopping areas and/or had access to public transportation, and 69 percent were reported to be in good to excellent condition. The small and medium-size facilities were predominantly normalized, whereas only 12 CRFs with over 20 residents were considered to be normalized. Nearly half of the CRFs were small facilities, almost one-third housed between 11 and 20 residents, and only one-quarter were large. Half of all residents were living in large facilities, 27 percent in medium-size facilities, and only 23 percent in small facilities. When the number of residents living in normalized versus non-normalized facilities was taken into consideration, over 50 percent (3,830) of the population was found to be residing in non-normalized CRFs.

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2646 **O'CONNOR, GAIL.** Establishment of facilities. In: O'Connor, G. *Home Is a Good Place: A National Perspective of Community Residential Facilities for Developmentally Disabled Persons.* (AAMD Monograph, Number 2.) Washington, D.C.: AAMD, 1976, Chapter 4, p. 23-27.

The data obtained during the 1972-74 nationwide descriptive study of community residential facilities (CRFs) for the developmentally disabled do not reveal any particular modus operandi among the facilities already developed. Developers' responses concerning their motivation for starting their facilities ranged from a desire to provide a special program for MR children and adolescents to a desire to develop homes for the benefit of workshop clients to a desire to make a profit. Personal interest and/or being an interested parent and/or other citizen were the major motivating factors. Almost half of the CRFs reported some contact with their Developmental Disabilities Council, and CRFs in 16 states reported some help from these Councils. One-third of the CRFs studied were reported to have faced opposition by community members, mainly neighbors, at the time the facilities were established, but almost all of them indicated that the opposition had definitely decreased since that time. Despite the complexities of licensing and certification, only a fourth of the licensed/certified facilities reported major problems in meeting regulations and obtaining licenses.

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2647 **O'CONNOR, GAIL.** Management of facilities. In: O'Connor, G. *Home Is a Good Place: A National Perspective of Community Residential Facilities for Developmentally Disabled Persons.* (AAMD Monograph, Number 2.) Washington, D.C.: AAMD, 1976, Chapter 5, p. 28-37.

According to the findings of the 1972-74 nationwide descriptive study of community residential facilities (CRFs) for the developmentally disabled, 3 major areas of concern exist in the management of all CRFs, with considerable variation found within each area. Advisory groups can be subdivided into advisory boards and boards of directors, depending upon policy setting and administrative decisions. One or the other type of advisory group was utilized by almost two-thirds of CRFs. An administrative director and additional staff was the predominant staffing pattern; the second main pattern was that of one or more houseparents, positions generally characterized by a full range of responsibilities including administrative, supervisory, training, and facility maintenance functions. Essentially all of the CRFs had eligibility requirements for residents, and most of them had multiple requirements. In order to facilitate appropriate placements, almost two-thirds of the CRFs based new resident selection upon the type of residents currently living in the facility. The accounting information used in most CRFs was cash-based.

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2648 **O'CONNOR, GAIL.** Community services. In: O'Connor, G. *Home Is a Good Place: A National Perspective of Community Residential Facilities for Developmentally Disabled Persons.* (AAMD Monograph, Number 2.) Washington, D.C.: AAMD, 1976, Chapter 6, p. 38-45.

The 1972-74 nationwide descriptive study of community residential facilities (CRFs) for the developmentally disabled showed that services available in communities varied from community to community and even between areas in a given city. Nearly 90 percent of the respondents reported that medical and dental services were utilized regularly and were adequate for residents' needs. About half of the CRFs used one or more educational service (educational counseling, regular and special classes, and classes for individuals over age 18) and found them to be satisfactory, yet more than one-third reported that at least one of these services was inadequate or unavailable but definitely needed. About half of the CRFs reported that effective vocational services were available, and most reported that adequate mental health counseling was available. Access to social and recreational services and transportation was inadequate in many cases, however. Although about half of the CRFs reported that financial assistance was available and adequate, nearly 4 out of every 10 said it was either unavailable or inadequate to meet their needs. Nearly half of all residents lived in CRFs needing 4 or more services.

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2649 **O'CONNOR, GAIL.** Residents. In: O'Connor, G. *Home Is a Good Place: A National Perspective of Community Residential Facilities for Developmentally Disabled Persons.* (AAMD Monograph, Number 2.) Washington, D.C.: AAMD, 1976, Chapter 7, p. 46-65.

Residents in the community residential facilities (CRFs) for the developmentally disabled surveyed in the 1972-74 nationwide descriptive study ranged in chronological age mainly between 17 and 34 years; most had basic self-help skills, and 80 percent were estimated to have an IQ of 40 or above. More than half had a history of institutionalization (directly) preceding their move to the CRF. Most residents were involved in some form of work or work training: 14 percent had paid jobs in the community, 43 percent were in work training programs, 26 percent were in sheltered workshops, 47 percent were attending some school classes, and 31 percent attended school as their principal program. Most residents also had home responsibilities. Half of the residents had regular contact with their families, 57 percent had friends outside the CRF whom they both visited and entertained as guests, and 20 percent dated. Facility managers felt that 4 out of every 10 residents would be able to live independently in the community in the future. The most popular community activities were visiting restaurants and snack bars, shopping, and recreation, both indoor and outdoor.

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2650 **O'CONNOR, GAIL.** Summary and recommendations. In: O'Connor, G. *Home Is a Good Place: A National Perspective of Community Residential Facilities for Developmentally Disabled Persons.* (AAMD Monograph, Number 2.) Washington, D.C.: AAMD, 1976, Chapter 8, p. 66-73.

The findings of the 1972-74 nationwide descriptive study of the nature and operations of community residential facilities (CRFs) which provide homes for developmentally disabled persons indicate that CRFs provide a viable approach to community living for the developmentally disabled but that certain inadequacies exist. Emphasis should be placed on the development of CRFs in residential and mixed residential/business areas, within walking distance of shops and stores, and near public transportation when possible. A master plan of development of residential facilities and community programming for at least a 5-year period would seem desirable. Further study of staff attitudes could provide valuable insight into attitudes which enhance staff functions. Considerable development and expansion of community services are urgently needed,

and adequate cost information regarding the development and operation of CRFs must be obtained.

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2651 **CLELAND, CHARLES CARR.** Residential care. In: Cleland, C. C. *Mental Retardation: A Developmental Approach*. Englewood Cliffs, New Jersey: Prentice-Hall, 1978, Chapter 7, p. 143-180.

Although institutions for MRs have consistently possessed a poor image, they have had some remarkably energetic and creative leadership, and a number of such individuals with managerial sophistication and therapeutic knowledge are at the helm today. Until about 1950 it was a rather rare occurrence to find a state-supported institution for MRs directed by anyone but a physician. The era of the medical model is now past, although such features as emphases on diagnosis, therapy, prognosis, and related medical contributions remain. Currently, institutions are beginning to lean towards an interdisciplinary model and are focusing on maximum development of each resident's social, emotional, and cognitive potential. The large, state-supported facility should employ its full range of resources on internal programs, and community programs should be separate organizational components with their own administrative and personnel complements and budgets. Institutional development can complement the individual developmental model, which views the MR as changing throughout life and as being capable of growth, development, and learning. (77 refs.)

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2652 **SCHEERENBERGER, R. C.** Deinstitutionalization. In: Scheerenberger, R. C. *Deinstitutionalization and Institutional Reform*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 5, p. 125-186.

Deinstitutionalization of the MR is, among other things, an attitude which emphasizes freedom, independence, individuality, mobility, personalized life experiences, and a high degree of interaction in a free society. To a significant degree, deinstitutionalization depends upon the ability of each community to provide the array of services required by MRs throughout their life span. Such services should be offered along a continuum of care and place high priority on retaining as many MRs as possible in the community. Both generic and special services will be required. Local authority, independently determined standards, backup services, effective advocacy programs, and adequate financial support all are necessary components for successful deinstitutionalization. Advocacy systems may involve state agency programs, citizen advocacy, and/or legal representation. Public awareness of and sensitivity to the rights of MRs are also essential. Parents are confronted with many problems associated with deinstitutionalization and must be assured of quality community services with adequate supervision and backup facilities other than in the home without undue personal financial burden. (80 refs.)

Central Wisconsin Colony
and Training School
Madison, Wisconsin

2653 **SCHEERENBERGER, R. C.** *Deinstitutionalization and Institutional Reform*. Springfield, Illinois: Charles C Thomas, 1976, 258 p. (Price unknown.)

A state-of-the-art analysis of the field of MR is presented, with emphasis placed on the ultimate goal of deinstitutionalization. Well-coordinated community services and institutional reform are regarded as essential components of deinstitutionalization. Appendices review the court standards for Partlow State School in Alabama and include the opinions written in two court cases.

CONTENTS: Mental Retardation; Effects of Residential Living; Present Status of Residential Services; Litigation; Deinstitutionalization; Institutional (Residential) Reform.

2654 **SCHEERENBERGER, R. C.** Mental retardation. In: Scheerenberger, R. C. *Deinstitutionalization and Institutional Reform*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 1, p. 3-18.

MR is a complex, multifaceted problem which is subject to an interminable number of classifications, formal and informal, intended to satisfy the needs of a discipline, service, or area of investigation. While degree-of-MR nomenclatures based upon intelligence scores are of value, especially with respect to demography and generic discussions of programming, they are extremely limited when applied for purposes of identifying and planning for the individual MR. In order to compensate for these deficiencies, there has been a growing interest in developing a classification based upon adaptive behavior. A third common system of nomenclature divides MR into EMR, TMR, and SMR/PMR. The most frequently quoted estimate of MR incidence is that approximately 3 percent of the total population will be considered MR at some point during their lives. Despite the statistical differences between the 1955 Onondaga County (New York) census and Weiner's 1958 Hawaii study, the greatest frequency of MR was evidenced between the ages of 8 and 16 in both investigations. Of particular concern in the area of deinstitutionalization is the fact that very few MRs have ever required extended residential services. (21 refs.)

Central Wisconsin Colony and
Training School
Madison, Wisconsin

2655 **SCHEERENBERGER, R. C.** Effects of residential living. In: Scheerenberger, R. C. *Deinstitutionalization and Institutional Reform*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 2, p. 19-58.

One of the most significant effects of residential living on the MR is the anxiety caused by separation from the parents. Research has shown that parental attachments are formed very early in life and are of extreme importance. It is not possible to determine exactly how the SMR or PMR child reacts to this separation, but the traumatic nature of the experience must not be understimated in working with the MR in the residential setting. Review of the research literature with regard to such developmental areas as intelligence and related functioning, personality, speech, and language as well as education has produced equivocal results. In many instances, MR residents did not perform as well as their peers in the community. To what extent such repressed performance reflected preadmission experiences, individual characteristics of the Ss, or the effects of residential life remains relatively unclear. However, there is evidence to indicate that the degree of personal interaction between staff and residents, the availablility of specially designed programs, the existence of a supportive physical environment, and a commonly held positive developmental philosophy by all residential personnel definitely influence resident's behavior and growth. Facilities which are insufficiently staffed with well-trained personnel to design and implement individualized programs and which can only provide conditions of mass living are not in a position to foster maximum human development. While residential living does not have to repress human functioning and can be of great assistance to MRs, the required quality of residential life and programming is not evident in many existing residential facilities. (100 refs.)

Central Wisconsin Colony
and Training School
Madison, Wisconsin

2656 **SCHEERENBERGER, R. C.** Present status of residential services. In: Scheerenberger, R. C. *Deinstitutionalization and Institutional Reform*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 3, p. 59-96.

Data collected in 1974 from a survey of approximately 50 to 80 percent of the public residential facilities for the MR in 49 states indicate many improvements in residential services. Contemporary philosophies governing residential programming emphasize (1) meeting the total developmental needs of each resident, including the SMR and PMR, (2) providing a warm, normal physical environment, and (3) returning residents to their home communities as soon as possible. Such philosophies have been reinforced by the developmental model and the principle of normalization, a growing recognition of the rights of MRs, standards for accreditation, and federal regulations. Today, an estimated 176,000 MRs live in 235 operational public residential facilities with a total bed capacity of 178,000. Most of these facilities provide a comprehensive range of developmental activities and programs and offer a variety of services from the community, including diagnosis and evaluation, education and training, medical services and respite care. Although there is evidence to indicate that parents are becoming more active in

residential programming and management, many need to be encouraged to resume a more active relationship with their son or daughter. (30 refs.)

Central Wisconsin Colony
and Training School
Madison, Wisconsin

2657 **SCHEERENBERGER, R. C.** Litigation. In: Scheerenberger, R. C. *Deinstitutionalization and Institutional Reform*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 4, p. 97-124.

Litigation has been used successfully to clarify the rights of MRs in three major areas--the right to treatment, due process, and involuntary servitude. In essence, court decisions have enunciated clearly the principle that no person, regardless of intellectual limitations, shall be denied the right to live in a free and open society without recourse to the full protection of the law, and have insured that appropriate care, treatment, and training shall be provided. Moreover, any work performed by an MR resident now must be reimbursed in accordance with the Fair Labor Standards Act. Conspicuously absent from court decisions has been any comment concerning the responsibility of attorneys and judges. The legal profession needs to become more knowledgeable about and sensitive to the needs and rights of MRs as well as alternatives to residential placement. Not only will the courts continue to play a prominent role in the affairs of residential facilities, but they will also play an increasing role with regard to community services and children's rights in general. The concept of child abuse is changing to include the more subtle aspects of neglect, and the courts will not hesitate to intervene in cases where neglect is evident. (33 refs.)

Central Wisconsin Colony and
Training School
Madison, Wisconsin

2658 **SCHEERENBERGER, R. C.** Institutional (residential) reform. In: Scheerenberger, R. C. *Deinstitutionalization and Institutional Reform*. Springfield, Illinois: Charles C Thomas, 1976, Chapter 6, p. 187-218.

Residential reform presents multifarious problems in terms of both planning for the future as well as ameliorating present deficiencies. Extended residential programming in the future will emphasize services for multiply handicapped, SMR and PMR individuals and those with severe behavioral disorders. In addition to extended services, residential facilities will provide intensive short-term programs, collaborate closely with the community, offer a variety of training to parents and representatives from local agencies, and participate in public informational programs. Dimensions of residential reform include acceptance by all personnel of deinstitutionalization as an attitude and as a principle. Resident's rights should not only be recognized by all residential personnel but should be protected by an effective advocacy system. Resident programs should emphasize total development and the principle of normalization to the fullest degree possible. The physical environment of most residential facilities requires substantial modification. Not only should parents receive continuous counseling and support following admission of their MR child, but they also should be encouraged to participate in nearly all aspects of residential living. (42 refs.)

Central Wisconsin Colony
and Training School
Madison, Wisconsin

2659 Slow progress for the mentally handicapped. *Lancet*, 1(8009):494-495, 1977.

Although a plan to bring people out of mental handicap hospitals into the community has been in existence since 1959, progress has been extremely slow. There are more than 50,000 people in these hospitals, and it is the government's goal to reduce this number to about 33,000 by 1991, provided that a sufficient range of facilities exists in the community to cope with such a discharge. Many local authorities are not pushing ahead fast enough to meet this target date, yet the Department of Health and Social Security has shown great reluctance to open a dialogue with authorities whose performance is below the national average. One ray of hope for the future is the policy of joint financing between health authorities and local authorities, which began a year ago. Overcrowding remains a major cause for concern. The chairman of the National Development Group for the Mentally Handicapped believes that there are ways to improve services even in the current economic climate, but it remains to be seen how much the government is willing to do to achieve its goal.

2660 *BICKNELL, JOAN; & **BLOWERS, A. J. Mental handicap: Hospital and community. *Lancet*, 1(8017):899, 1977. (Letter)

Bicknell discusses the policy of the British government concerning hospital and community care for the MR. The adverse effects of financial cutbacks, the slow growth of hostel provision, and the slow reduction in bed numbers in the large hospitals are cited in relation to the objectives of returning patients to the community and of improving the services of the large MR hospitals without further massive expenditures. Group homes frequently supported by voluntary organizations, multidisciplinary teamwork (nurse, psychologist, speech therapist, and occupational therapist) and development of small, community hospitals are recommended. Blowers describes a 10-year plan of the Surrey County Council for providing day centers, training centers, and homes which initially succeeded but ended after 3 years due to lack of funds. Blowers discusses joint financing shared by national and local authorities, the provision of group homes, and the need for the British Government to allocate more resources to reduce the number of patients in MR hospitals.

*Botleys Park Hospital
Chertsey, Surrey, England

**Chevron
Mayfield Avenue
New Haw
Weybridge, Surrey, England

2661 MEIN, RICHARD. Flowers for the institution—lilies or red roses. *British Journal of Mental Subnormality*, 23, Pt. 1(44):3-5, 1977.

Hospitals for the mentally subnormal have incorporated many changes which are beneficial and conducive to happiness, but in order for these hospitals to become the communities for the mentally handicapped in the real sense of the word they must rethink the question of how patients can contribute realistically to their community through their work. Clearly, the hospital is unlikely to provide an environment which even approximates the normal family situation. Nevertheless, the developing child needs stable adult figures on whom to anchor his security growth and to model his behavior and language development. Where these conditions for continuity are not met, the child may demonstrate vulnerability in the form of reduced functional level and attendant behavior disorders. The child in long-term care is particularly vulnerable to adverse conditions. Many hospitals have developed liberal regimes for their adult patients, but these changes are unfortunately reflected in a current departure from patient involvement in the routine domestic services of the hospital, work which gave patients an opportunity to obtain social status by having them contribute to the community of which they were a part.

Harperbury Hospital
Shenley, Herts, England

2662 ORLEANS, PETER. The physical environment of the mentally handicapped. XIII. Personal space: architectural modification in an institution for the mentally retarded. *British Journal of Mental Subnormality*, 23, Pt. 1(44):36-42, 1977.

A designer was asked to suggest architectural modifications which could be made to the physical facilities in the Upper Rounds of the State Home and Training School in Wheatridge, Colorado that would contribute to normalization. What is so dehumanizing about the Upper Rounds is precisely what has been designed into them to facilitate ease of custodial care: they are abuse-resistant, inmate access to control of the environment has been minimized, keepers are separated physically from the inmates, and environmental stimuli and amenities are kept to a minimum. Through discussions with staff, observations of the setting itself, and a review of the available literature on normalization, the designer was able to translate program requirements into an appropriate design. Emphasis in the design was placed more on creating individualized and small-scale spaces within the existing ward room and day room than on overall revision of the facility. Emphasis also was put on creating an environment which could be altered by the residents themselves. (9 refs.)

2663 Greater assurances are needed that emotionally disturbed and handicapped children are properly cared for in Department of Defense approved facilities: Report to the Congress by the Comptroller General

of the United States. *Resources in Education (ERIC)*, 12(9):75, 1977. 73 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $3.50, plus postage. Order No. ED138002.

Problems pertaining to the treatment of emotionally disturbed and handicapped children and adolescents under the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) are described as well as actions taken to correct these problems and additional areas needing improvement. Five sections (sample topics in parenthesis) focus on: introduction (program administration and costs of care in CHAMPUS); procedures needed to avoid inappropriate admissions and excessive lengths of stay (results of case reviews by medical advisors); better criteria and inspection procedures needed in approving facilities (progress and problems in approving psychiatric facilities); financial provisions of the program for the handicapped which need to be reconsidered (cost-sharing requirements and current charges of facilities); and improved controls over facility financial charges needed (facilities often not collecting sponsor's share). Conclusions, agency comments, and recommendations to the Secretary of Defense are provided for all but the introductory section.

2664 Nebraska University Medical Center. *Meyer Children's Rehabilitation Institute: Annual Report 1975-76.* Omaha, Nebraska: Meyer Children's Rehabilitation Institute, 1976. 78 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $4.67, plus postage. Order No. ED137993.

The 1975-76 annual report of the Meyer Children's Rehabilitation Institute, a diagnostic, evaluation, and treatment center for children with complex handicaps in the state of Nebraska and Western Iowa, is presented. The institute's priority goals include providing leadership and assistance in program planning and development; research in causes, prevention, and treatment of handicapping conditions in children; developing, providing, and demonstrating needed services to meet education and training objectives; and providing an interdisciplinary education and training program for personnel needed in programs for handicapped children. Sections of the report cover general activities and administration, including descriptions of special projects; organizational charts and information on staff members; interdisciplinary program reports, including programs in child care technician training, family rehabilitation, infant development, learning disabilities, multihandicapped children, and nursery school; reports from each discipline represented, including dentistry, medicine, nursing, occupational therapy, physical therapy, psychology, social service, and speech pathology; and the office of research report, future plans, statistics, and a listing of staff activities.

2665 National Institute of Mental Health. Deinstitutionalization: an anlytical review and sociological perspective. 48 p. Bachrach, Leona L. Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 20402. Stock No. 017-024-00530-4. Price $1.10.

A review of recent literature on the deinstitutionalization of emotionally disturbed persons concludes that the goals of the deinstitutionalization movement can best be met by shunning territorial arguments and examining the usefulness of such programs as hospital-based outpatient care, brief hospitalization, and community outreach. The opposing theories of deinstitutionalization—the idea of reliance on community resources and the more recent trend toward providing a continuum of treatment alternatives—are discussed. Issues involving the selection of patients for community treatment, the actual community treatment, financial and fiscal problems, legal and quasilegal problems, and accountability are covered in brief sections. The theory and application of the functionalist approach to asylum and custody are described. The bibliography contains about 480 references.

2666 **ROOS, PHILIP.** Trends in residential institutions for the mentally retarded. Trends in education series. Columbus, Ohio: University Council for Educational Administration, 1976. 34 p. Available from The University Council for Educational Administration, 29 West Woodruff Avenue, Columbus, Ohio 43210. Price $3.00.

The principal tenets of an ideology on care of the MR are presented: (1) The MR should be viewed

as capable of growth and development regardless of age or degree of MR; (2) The life style of MR persons should resemble that of non-MR persons to the closest extent possible; (3) The MR and their representatives should have maximum participation in planning, programming, and decision-making; (4) Protection must be provided for ensuring the legal and human rights of the MR; (5) High-quality residential services for the MR should be ensured through the development of national standards; (6) Residential services should continually be upgraded by expanding technology, thereby lessening the need for institutionalization; and (7) When feasible, MR persons should be integrated into the activities of the culture to which they belong. Introductory observations include a discussion of definitions of MR, early developments in care of the MR, trends in the characteristics of institutional populations, and the growing dissatisfaction with institutionalization expressed by professionals and other interested groups. Developments likely to occur in the next 10 to 20 years in the field of MR are contained in a series of 18 conclusions.

PROGRAMMATIC ASPECTS – Recreational

2667 Iowa University. Recreational services for the handicapped. Iowa City, Iowa: Recreation Education Program, 1976. 27 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED132803.

Information is furnished on the program of Recreational Services for the Handicapped (Baltimore, Maryland) for handicapped children and adults, as part of a larger project to collect and share data on the operational techniques of 18 community action models for recreation services to the disabled. Primary activities offered include sports, tumbling, arts and crafts, music, cooking, socializing, camping, swimming, and hiking. The center has a total budget of $115,000 for the ongoing program and $97,000 for the summer camping program, both provided by city funds, and is designed to provide learning experiences as well as pleasure for handicapped children and adults.

2668 Iowa University. Maine-Niles Association of Special Recreation. Iowa City, Iowa: Recreation Education Program, 1976. 29 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED132802.

Information is furnished by Maine-Niles Association of Special Recreation (Skokie, Illinois) on recreation services for handicapped of all ages, as part of a larger project to collect and share data on the operational techniques of 18 community action models for recreation services to the disabled. Primary activities include swimming, arts and crafts, dance, drama, educational activities, outdoor recreation, sports, and social activities; primary facilities include parks, schools, bowling alleys, and pools. The program is supported by special district funds, concessions, fees and charges, and city park and recreation funds at a total budget of $184,934, and is designed to provide normalization, acquisition of social skills, physical fitness, creative leisure, self-expression, and cultural enrichment.

2669 Iowa University. Recreation Service Handicapped, Inc. Iowa City, Iowa: Recreation Education Program, 1976. 29 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. ED132800.

Information is furnished on the program of Recreation Service Handicapped (Memphis, Tennessee) for handicapped persons of all ages. Primary activities include swimming, social activities, dances, arts and crafts, Brownies, and counseling and guidance; primary facilities used are a recreation center and bowling lanes. The program has a budget of $45,000 provided by

county and City Park Commission Fund Raising, and aims to provide therapeutic recreation for all handicapped people.

2670 Iowa University. Leisure services. Iowa City, Iowa: Recreation Education Program, 1976. 23 p. Available from ERIC Document Reproduction Services, Box 190, Arlington, Virginia 22210. MF $0.83; HC $1.67, plus postage. Order No. ED132799.

Data are furnished by Leisure Services of the State Technical Institute and Rehabilitation Center, Plainwell, Michigan, on services provided to individuals in Michigan in need of vocational rehabilitation as part of a larger project to collect and share data on the operations of 18 community action models for recreation services to the disabled. Activities reported include swimming, crafts, art, exercise, games, and sports; facilities include a recreation building, fields, a putting range, tennis courts, and a lake. Total budget is $6,300, primary sources of support being contributions, fees and charges, and the Vocational Rehabilitation operating budget.

2671 Iowa University. King County Division of Parks and Recreation. Iowa City, Iowa: Recreation Education Program, 1976. 30 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED132797.

Information is furnished on recreation services for the MR, physically disabled, and senior adults offered by the King County Division of Parks and Recreation, Seattle, Washington. Primary activities include sports and games, arts and crafts, dance, drama, music, socializing, and outdoor recreation; facilities used include parks, pools, recreational centers, and schools. The program has a budget of $199,276 provided by the county government, and is staffed by 3 full-time recreation specialists, 10 leaders, 29 aides, and 259 volunteers.

2672 Iowa University. Nassau County Department of Recreation and Parks. Iowa City, Iowa: Recreation Education Program, 1976. 31 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED132796.

Data are provided on recreation services for disabled adults offered by the Nassau County Department of Recreation and Parks in East Meadow, New York, as part of a larger project to collect and share data on the operation of 18 community action models for recreation services to the disabled. Primary activities include parties, dances, theatre, swimming, picnic events, and fashion shows; primary facility used is a centrally located building with all architectural barriers removed. The budget makes available $3,900,000 of county funds to provide community based programs aimed at the social integration of disabled and nondisabled.

2673 Iowa University. ANCHOR (Answering the Needs of Children with Handicaps through Organized Recreation). Iowa City, Iowa: Recreation Education Program, 1976. 27 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED132795.

Responses given by ANCHOR (Answering the Needs of Children with Handicaps through Organized Recreation) to a project identifying recreation services to handicapped children ages 6-21 in Hempstead, New York, as part of a larger project to collect and share data on the operation of 18 community action models for recreation services to the disabled, are furnished. Primary activities include music, arts and crafts, bowling, swimming, dance, physical education, drama, special events, and field trips. Primary facilities used are town parks, schools, commercial bowling alleys, and town swimming pool. The program has a budget of nearly $250,000, and is staffed by 23 group leaders, 30 group aides, 5 substitutes, and 15 specialists.

2674 Iowa University. Recreation programs for the handicapped. Iowa City, Iowa: Recreation Education Program, 1976. 31 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $2.06, plus postage. Order No. ED132793.

Information is provided by Recreation Programs for the Handicapped, a project of the National Institute on New Models for Community Based Recreation Programs and Services for Handicapped Children and Youth (Miami, Florida) on services provided to physically handicapped children and adults in Dade County, Florida. This publication is a part of a larger project to collect and share data on 18 community action models classified within the categories of consumer, client competency, recreation and leisure services, parks and recreation, rehabilitation, and voluntary health agencies. Program services reported for each model are primary activities (recreation and leisure programs mixed with community survival skill training), type of primary facility utilized (park facilities, community schools, group homes, and junior colleges), staffing (45 recreation specialists and recreation leaders), budget resources ($300,000) and main sources of financial support (Federal funds, grants, and City of Miami general funds), and values promoted and goals attained in the recreation programs. An example of the completed survey form is included.

2675 **WEHMAN, PAUL H.** A leisure time activities curriculum for the developmentally disabled. *Education and Training of the Mentally Retarded*, 11(4):309-313, 1976.

An optimal way of presenting leisure time activities on the curriculum to MR clients would be across tiers (or a cross-section) in order to maximize novelty of activities. Tier I is directed at play behavior on or with different types of commercial toys and play materials, although ideally some symbolic play might eventually emerge. Tier II includes progressively more involved areas of passive recreation which are largely spectator in nature and require little action by the individual. Tier III is the broad category of games which are commonly popular. At Tier IV, hobbies are suggested as a level of leisure time activities which may be most appropriate for the MR who lives alone. Finally, Tier V is labeled active socialization and refers to those activities which encourage an individual to make new friends and acquaintances. The primary objective of a leisure time activities curriculum is to provide MRs at all functioning levels and ages with an opportunity to learn recreation skills which are commensurate with their behavioral development. As an individual's adaptive behavior repertoire expands, he can absorb greater portions of the curriculum. A second goal of the curriculum is to provide educators with a training sequence. (14 refs.)

Department of Special Education
Virginia Commonwealth University
Richmond, Virginia 23284

2676 **SESSOMS, H. DOUGLAS.** The mentally handicapped child grows at play. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 28, p. 271-277.

The research investigations of the play patterns of MR children are limited in number, but they all support the "grow through play" thesis. Studies of the effects of physical activity on motor development and learning, and research in the psychosocial dynamics of play have been reported the most frequently. It is generally accepted that the MR child seeks and receives the same benefits from play as the normal child does and that solitary activities are not very successful for MR children. Regardless of the cause or degree of MR, most mentally defective children will experience growth and development through play. The recreator working with MR children should provide programs maximizing physical achievement in which the child can see immediate results. For maximum benefit, the MR child should be introduced to new play situations gradually. MR children and adolescents in particular need free play time. Random play can become more imaginative if suggestive toys are provided, since the form of play expression is determined somewhat by the environment. (10 refs.)

University of North Carolina
Chapel Hill, North Carolina

2677 **HILGENDORF, MYRA.** The art of the retarded. *Australian Journal of Mental Retardation*, 4(6):22-25, 1977.

In the approach to the art of MRs, the emphasis must be on the quality of expressiveness captured in the work. One cannot look for the technical expertise of the masters. Similarly, the knowledge of materials and the physical control of media are beyond the grasp of most MRs. Nevertheless, one

finds in the art as well as in the lives of MRs the unspoiled, unmediated responses which the innovative painters of the twentieth century themselves explored. This immediacy is evident in color, texture, and line, in the uninhibited gestures with brush and pen, and in the spontaneous creation of fresh images by MRs. The reactions of the general public to the Minus Plus Exhibition of art works done by MRs, which was first shown at Georges Gallery in Melbourne (Australia) in 1976 and which subsequently toured 15 of the 20 regional galleries of Victoria (Australia), indicate a widespread blindness to these artistic achievements, however. Obviously, it is still a shocking experience to some people that they be expected to look at and take seriously the work of a section of the community which it had been traditional to reject. (4 refs.)

Art Project for the Mentally
Retarded
Melbourne, Australia

FAMILY

2678 **YOUNG, MARJORIE.** Lonely parents: Observations by public health nurses of alienation in child abuse. *Resources in Education (ERIC)*, 12(7):43, 1977. 23 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED134894.

Public health nurses (N=191) were interviewed regarding their observations of alienation in families who abuse their children. Social isolation and powerlessness were compared as variables in abusive families and a control group of nonabusive families through the Internal-External Locus of Control Scale and FIRO-B, and significant differences were noted. Support systems available to families in times of crisis, numbers of friends, communication with spouses, and integration into the community were also investigated in abusing families and controls, as were a number of indicators including ability to deal with the child's behavior and the parent's unrealistic expectations of the child. Unrealistic expectations of the child discriminated abusing from nonabusing families only partially at a significant level of confidence.

2679 **VAN PELT, JOHN D.** A parent's look at independent living. *Australian Journal of Mental Retardation*, 4(5):1-3, 1977.

The decision to place an MR child in a home for independent living is a traumatic experience for the parents, and it necessitates effective and open communications between the parents and the association running the home. In most cases this will be a local association for MRs. The association should take positive steps and invite the parents in to discuss their problems individually as well as in a group. Group sessions with people who share many common problems have proved beneficial in various fields, and this kind of social therapy has the potential to aleviate the anxieties of parents who have placed an MR child in a home for independent living. The placement of a child is not only a negative thing in that he or she leaves home. First, the child learns to become independent. Second, it gives the parents a chance to improve the child's material, social, and spiritual surroundings. However, the parents' worries are not over once the child has left the family circle. Sexual matters in particular remain a controversial issue.

2680 **BOYLE, M.; GIFFEN, A.; & *FITZHARDINGE, P.** The very low birthweight infant: impact on parents during the pre-school years. *Early Human Development*, 1(2):191-202, 1977.

Although several papers report a high incidence of child abuse, abandonment, and failure to thrive among intensive care infants, this study found no basis for such a correlation. Follow-up data were analyzed on 75 families who had infants with birthweights under 1,501g (very low birthweight: VLBW) and 55 families (from the same time period) who had infants with birthweights over 2,500g. Interviews with the parents, when the children were 3-5 years old, revealed that parents with VLBW children gave a less favorable evaluation of their children in 2 of 7 areas considered: development and play. These differences could be accounted for by a subgroup of 22 VLBW children with neurological and/or intellectual impairment. This data indicates that the experience of having a VLBW child does not have a significant or continuing impact on the family. (23 refs.)

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Hospital for Sick Children
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Canada

2681 **INGALLS, ROBERT P.** The family of the retarded child. In: Ingalls, R. P. *Mental Retardation: the Changing Outlook*. New York, New York: John Wiley & Sons, 1978, Chapter 13, p. 313-336.

The birth of an MR child or the discovery that a

child is MR almost always has a severe emotional effect on the parents. It has been suggested that these parents experience 3 kinds of crises. The novelty crisis is short-lived and is a response to the news of a sudden change. The value crisis results from the fact that the parents must deal with conflicting values, and it is more serious. The third type of crisis is the reality crisis, a response to the concrete problems presented by raising an MR child. There have been several major studies about the effects of a handicapped child on the family, but the results are inconclusive. Some children, especially the more severely handicapped and those with severe behavior problems, can cause considerable stress and tension, but many families apparently are able to adjust to the presence of a handicapped child with few disruptions. Some siblings report a frank dislike of their MR brother or sister, but others feel that they have benefited from the experience. Many parents seek some sort of counseling, the most important function of which is probably education about MR—about how to discipline an MR child, about available services, about legal rights, and about genetic risks. (44 refs.)

2682 **KAUFMAN, KENNETH F.** Teaching parents to teach their children: the behavior modification approach. In: Feingold, B. A.; & Banks, C. L., eds. *Developmental Disabilities of Early Childhood.* Springfield, Illinois: Charles C Thomas, 1978, Chapter 9, p. 96-120.

A comprehensive training program for families of autistic children was developed at Sagamore Children's Center in Melville, New York, as a means of achieving successful management and treatment of these children. The seeds for the program were planted in 1972 when rap sessions with parents demonstrated their lack of knowledge of their children's condition and behavioral principles and their disdain for professionals. The first behavior modification course on Long Island for parents of autistic children was organized in 1973, and two subsequent courses were offered during 1973 to 1974. In 1974, a comprehensive training program was begun using Dr. Martin A. Kozloff's book *Educating Children with Learning and Behavior Problems* as the primary curriculum source. Deposit contracts, 15 training classes, and individual home visits were major components of the program. The program seemed to replicate successfully the clinical aspects of the parent education program developed by Kozloff, and all the comprehensively trained parents seemed confident in their ability to conduct training sessions with their children. A vast network of supportive services may be necessary for such programs to be maximally effective, however. (19 refs.)

Sagamore Children's Center
Melville, New York

2683 **GROSSMAN, BRUCE.** Closing the parent-professional gap: toward a better working relationship with parents of developmentally disabled children. In: Feingold, B. A.; & Banks, C. L., eds. *Developmental Disabilities of Early Childhood.* Springfield, Illinois: Charles C Thomas, 1978, Chapter 10, p. 121-131.

Service to developmentally disabled children and their families has been improved significantly in recent years, but individual practitioners in particular can still do a great deal more. The development of new techniques and programs for early identification and treatment of developmental disabilities makes the parent-professional partnership all the more critical. The 5 most recurring difficulties encountered by parents of these children are being shuttled from one professional to another, being only partially informed about findings, the lack of integration between professional evaluations, the lack of knowledge of resources, and the lack of awareness on the part of professionals of the needs of parents. Pediatricians exhibit a general tendency to reassure parents by suggesting that parents wait for development to take place before they take any action. Unfortunately, this attitude may cause the loss of valuable time for intervention and interfere with parents' psychological acceptance. Ultimately, parents must find an appropriate educational program for their children and let go of their children, literally and figuratively. A sensitive professional can make these tasks easier. (4 refs.)

Hofstra University
Hempstead, New York

2684 **WEBSTER, ELIZABETH J.** Editor's summary. In: Webster, E. J., ed. *Professional Approaches with Parents of Handicapped Children.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 10, p. 254-255.

A number of similar themes run through the various approaches which can be used by professionals with parents of handicapped children, despite distinctions in authors' approaches and continuing questions raised by them. All of the approaches encompass compassion for the problems encountered by the parents and families of handicapped children, a belief in parental abilities to cope with their life situations, and a belief in parents as potential agents of change for their children. On the other hand, differences in opinion exist concerning the use of bibliotherapy, how best to use parents to train and support other parents, and whether or not to bring parents to a central location for help. Within the context of the basic similarities in these approaches to parents, these questions will be discussed for some time to come. However, the fact that there are differences of opinion is a very healthy sign. Each person who works with parents is a unique individual, and their individual creative expression avoids the kind of a sterility which would accrue if all practicing professionals followed the same format.

Department of Audiology and
Speech Pathology
Memphis State University
Memphis, Tennessee

2685 **FALCK, VILMA T.** Issues in planning future programs for parents of handicapped children. In: Webster, E. J., ed. *Professional Approaches with Parents of Handicapped Children.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 9, p. 230-253.

The needs of parents of handicapped children can be met by overcoming current barriers to comprehensive educational and health programs. The fact that these barriers exist was confirmed by a series of studies conducted in Texas in 1974 utilizing personal interviews with individuals and with small groups of parents, written responses to a questionnaire mailed to representatives of parent organizations for the handicapped, and documents prepared at a statewide conference for leaders of organizations for parents of handicapped children. There are many possible formats for involving parents of handicapped children, including delivery of services via family/community educational specialists, via home learning resource centers, and via parent groups and parent coalitions. There are also many procedures which can be used by specialists to improve their work with parents. Expansion of organized task forces of parents who plan to initiate and expand self-help programs should increase parental influence and resources. Continued efforts by professionals to initiate or improve services provided directly to parents are also expected. (35 refs.)

Division of Continuing Education
University of Texas Health Science Center
Houston, Texas

2686 **BISSELL, NORMAN E.** Communicating with the parents of exceptional children. In: Webster, E. J., ed. *Professional Approaches with Parents of Handicapped Children.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 8, p. 217-229.

A normalized approach to counseling and communicating with the parents of exceptional children requires a perception of all parents as individuals capable of positive contributions as active members of the team. Parent-professional relations will be enhanced, and effective involvement will be facilitated, if communications with parents build a parent-teacher partnership team to directly serve the child, provide growth experiences for the parents themselves, and provide opportunities for the establishment of friendly relations and mutual understanding. Interviews, written messages, verbal messages, and formal reports are common channels of communication between teachers and parents. Parent conferences can be effective if the teacher projects a feeling that the meeting was arranged so that the teacher and parent could learn from each other. If parents seldom come to the school, the teacher should go to them. The home visit can provide the teacher with a more comprehensive understanding of the child and an appreciation of his parents. If the teacher can establish a cooperative relationship, the chances are much greater that the exceptional child will be helped. (7 refs.)

Department of Special Education
University of Cincinnati
Cincinnati, Ohio

2687 **TODD, MARY; & GOTTLIEB, MARVIN I.** Interdisciplinary counseling in a medical setting. In: Webster, E. J., ed. *Professional Approaches with Parents of Handicapped Children.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 7, p. 191-216.

The Leigh Buring Memorial Clinic for Exceptional Children (CEC), in Memphis, Tennessee, dedicated to training physicians in developmental disabilities, offers numerous opportunities for counseling experiences with a variety of allied health specialists who offer professional supervision. At the CEC, parent-professional communication is stressed within the teaching and service programs. Medical students, interns, and pediatric house staff are assisted by experienced professionals in developing an understanding of the needs of families with exceptional children. Family involvement is a necessary adjunct to any remedial program for the youngster with a chronic handicapping condition, and the clinic provides parents with a resource to which they can turn for continued advice and support. The initial counseling interview explores parents' concerns and assesses their understanding of and reactions to the problem. The evaluation process is designed as a means of encouraging parental involvement. Upon completion of the diagnostic process and the tentative design of a therapeutic program, parent-professional interaction is provided to share findings with the family.

Leigh Buring Clinic for Exceptional Children
University of Tennessee Center for the
Health Sciences
Memphis, Tennessee

2688 **TAYLOR, FLONNIA C.** Project Cope. In: Webster, E. J., ed. *Professional Approaches with Parents of Handicapped Children.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 6, p. 146-190.

Project Cope was initiated at United Cerebral Palsy of the Bluegrass (Lexington, Kentucky) in an effort to provide much-needed help to the parents of handicapped children. The project was started by a private agency and was based upon psychiatric social work principles which were derived from child psychiatry, psychology, and social case work. At the beginning, meetings were held for the primary purpose of using child observation as a means of parent education. Later the project evolved into both a counseling and an educational program for parents of preschool children. The project plan was incorporated into programs of the fifteen Child Development Center units serving approximately 500 parents annually. In addition, it influenced other agencies to undertake similar programs. The first two activities of Project Cope, individual counseling and mothers' group sessions, started a series of activities which now include individual parent counseling, parent project council, mothers' sessions, fathers' sessions, parent club, mother-father joint sessions, parent orientation to classroom, parent-teacher sessions, parent-speech therapist conference, parent-to-parent interaction, parent as resources, and follow-along service. (27 refs.)

United Cerebral Palsy of the Blue Grass
Lexington, Kentucky

2689 **SIMMONS-MARTIN, AUDREY.** A demonstration home approach with hearing impaired children. In: Webster, E. J., ed. *Professional Approaches with Parents of Handicapped Children.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 4, p. 94-114.

The Parent-Infant Program at the Central Institute for the Deaf (St. Louis, Missouri) aims towards increasing parents' understanding and developing their competence in dealing with their hearing-impaired children. The emphasis is upon a process of total involvement of the parents to help them become effective in their own home with their child. Within the program, the intervener or teacher/counselor is alert to parents' emotional needs and relates to them on an individual basis. The format is home-type teaching, with the parents being the recipients of instruction. On the assumption that parents' experience in this program assists learning, the objective is their active participation rather than passive learning. In addition, group opportunities for ventilation and information exchange are provided, and observation of children in a classroom setting is also considered important. While the home demonstration center is not a panacea for the problems of the hearing-impaired child, it does enable parents to become more effective by providing meaningful experiences which govern the child's language and cognitive development. (10 refs.)

Central Institute for the Deaf
St. Louis, Missouri

2690 **DOERNBERG, NANETTE L.; BERNARD, MARY B.; & LENZ, CAROL F.** Psychoeducational treatment for parents of autistic children. In: Webster, E. J., ed. *Professional Approaches with Parents of Handicapped Children.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 3, p. 65-93.

Parents are the major influence in their child's environment, and it is in the home that preschool autistic children have the greatest opportunity to get the direction and love they need to grow as fully as possible. Counseling can greatly improve the chances of effective parental intervention. By working with parents from the standpoint of mutuality rather than treatment, the counselor functions as a friendly, supportive professional with whom they can identify and to whom they can turn for an open exchange of opinion and information, expert advice, and an affective response to their difficulties. During the past 8 years, a program of psychoeducational treatment has been offered to several hundred families. The results have demonstrated measurable changes in children and parents. The basic principle in the program, that autistic children are biologically impaired and not maltreated or insufficiently loved, is one which is antithetical to many clinicians. This position is most acceptable to parents, however, and the mere statement of it can do much to establish the beginnings of a good relationship. (39 refs.)

Albert Einstein College of Medicine
Bronx, New York

2691 **MURPHY, ALBERT T.** Parent counseling and exceptionality: from creative insecurity toward increased humanness. In: Webster, E. J., ed. *Professional Approaches with Parents of Handicapped Children.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 1, p. 3-26.

Creative counseling of parents of handicapped children tries to point up the strengths and possibilities of the present and nurtures the basic urge to fuller humanness as a universal life force. Parents of impaired children, especially those of severely handicapped children, have more chances than most to feel insecure, but such a moment can contain growth potential if it can be regarded as a creative insecurity. Creative counseling is a voyage of self-discovery, a journey to a wider horizon of conscious awareness of self and others. It is designed not only to uncover uniqueness but also to reveal commonalities. Counseling is most creative when feelings are given precedence over facts, when attitudes are given precedence over techniques, and when subjectivity is revered at least as much as objectivity by professionals. Overall, it is a process of enhancing communication. Openness to change and loving perception are key elements in counseling, as are variations in roles, techniques, and materials. In particular, role-playing, sociodrama, creative dramatics, and music therapy have great potential in counseling families with handicapped children. (21 refs.)

School of Education
Boston University
Boston, Massachusetts

2692 **WEBSTER, ELIZABETH J., ed.** *Professional Approaches with Parents of Handicapped Children.* Springfield, Illinois: Charles C Thomas, 1976, 268 p. (Price unknown.)

A wide variety of models for interaction between professionals and the parents of handicapped children is presented. The themes of compassion for the problems encountered by these families, a belief in parental abilities to cope with their life situations, and a belief in parents as potential agents of change for their children are common to all the methologies.

CONTENTS: Parent Counseling and Exceptionality: from Creative Insecurity toward Increased Humanness (Murphy); Various Aspects of Parent Counseling (McWilliams); Psychoeducational Treatment for Parents of Autistic Children (Doernberg, Bernard, & Lenz); A Demonstration Home Approach with Hearing Impaired Children (Simmons-Martin); Parents and Siblings as Co-Therapists (Wyatt); Project Cope (Taylor); Interdisciplinary Counseling in a Medical Setting (Todd & Gottlieb); Communicating with Parents of Exceptional Children (Bissell); Issues in Planning Future Programs for Parents of Handicapped Children (Falck); Editor's Summary (Webster).

2693 **POPE, LILLIE.** Clinician and parent: partners for change. *Resources in Education (ERIC)*, 12(7):74, 1977. 14 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135138.

Guidelines for working with parents of learning disabled children in a collaborative clinician-parent program are presented. Parents need guidance and support in managing the learning-disabled child at home, in dealing with family members and others who don't understand the problem, and in understanding the professional's language. The clinician is advised to follow 6 rules, including using simple language, specifying clear and honest goals for the child, and avoiding contributing to the parents' guilt. Components of the collaborative parent-clinician program, such as weekly parent group meetings and parent association sessions, are described.

2694 **HAMILTON, JENNIFER.** Caring enough to let go. *Children Today*, 6(6):23-25, 33, 1977.

Deciding to send an MR child to a residential school does not mean that parents do not love the child or want to get rid of him; on the contrary, it can be the greatest demonstration of love that the parents can make. Parents making this decision 25 years ago probably could have counted on being told that they had done the right thing. Today, however, official policy reflects a complete about-face: now, rather than isolate MRs, every effort is being made to keep them in the mainstream of normal living and to allow them, as far as possible, to grow up within the family unit. In some cases, the new emphasis on normalization can actually hinder constructive action. In the case of the family of a 14-year-old MR boy, the impulse to keep things as they were delayed a decision to put him in a residential school for 2 years after an appropriate school was found. Then, abruptly, the first step of observing the school was taken, and testing, application, and acceptance followed. The actual leave-taking was very difficult, but the boy adjusted quickly, and his parents learned to feel confident about their decision. The boy has now been at the school for almost 4 years; he is maintaining steady academic progress and is making vital growth as a person.

PERSONNEL

2695 **LANDERS, WILLIAM F.** Handicapped children in Head Start: two staff training models. *Resources in Education (ERIC)*, 12(9):79, 1977. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $3.50, plus postage. Order No. ED138031.

Two staff training models for serving handicapped children in Head Start—an experiental training model and a seminar-oriented training model—were evaluated with approximately 200 Head Start personnel in Iowa. The experiential model required Head Start staff (teachers, health coordinators, education coordinators, and directors) to spend 2 days in a training program which emphasized direct interaction between the trainee and the handicapped child. The seminar-oriented training model required Head Start staff to attend 2 days of seminars which focused on the sharing of information, problems, and possible solutions. Both models were found to be viable training approaches. Future training recommendations include encouraging active participation, utilizing a variety of activities, planning follow-up activities, evaluating training effectiveness, using the small group format, and establishing objectives based on a needs assessment of the trainees.

2696 **GAUTHIER, GASTON.** Educational diagnosticians and school psychologists: colleagues or competitors in working with the learning disabled. *Resources in Education (ERIC)*, 12(7):72-73, 1977. 11 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83; HC $1.67, plus postage. Order No. ED135125.

The roles and functions of 4 learning disability specialists in the French educational system of the Province of Quebec are described. The "orthopedagogue," the specialist concerned with the learning aspects of school problems, may work with individual students in small groups or with other teachers as a consultant. The "orthophoniste" is described as a language specialist concerned with speech and hearing problems; the "psychoeducateur" is described as being concerned with the reeducation of emotionally disturbed students and juvenile delinquent teenagers with learning disabilities. The school psychologist, the fourth specialist discussed, has a role that is changing from medically oriented diagnosis to classroom observation and consultant functions.

2697 **DAVID, MICHAEL K.** The "mother system" in an institution for the retarded. In: Gibson, D.; & Brown, R. I., eds. *Managing the Severely Retarded: A Sampler.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 34, p. 320-326.

The behavioral series of personnel positions developed and instituted at a hospital for MRs in an effort to improve services to residents was investigated to determine which factors contribute to lack of active cooperation, and a new job structure called the "mother system" was developed to get ward personnel actively involved in behavioral programs. An examination of the aide's job from his or her point of view showed that many cliches dealing with noncooperation were reflections of job structure rather than any trait of reluctance, laziness, or lack of cooperation on the part of the aide. The job appeared so unstructured that the various aides were never really sure who was responsible for each resident. Almost all aides have skills or experiences in family living, and these skills can be utilized by turning aides into "mothers" with "families" of residents. With the joint cooperation of the director of nursing, the ward nurses, and the behavioral personnel, mother groups have been set up on each ward. Improved services to residents and improved morale among ward staffs have resulted. (2 refs.)

Napa State Hospital
Imola, California

2698 **COBRINIK, RALPH.** Learning disabilities: the role of the pediatrician; evaluations of patients and families. In: Feingold, B. A.; & Bank, C. L., eds. *Developmental Disabilities of Early Childhood.* Springfield, Illinois: Charles C Thomas, 1978, Chapter 3, p. 15-34.

Pediatricians have been more active and introspective than any other group of physicians in coming to grips with their role in diagnosing and treating learning disabilities. There is a role for both primary pediatricians and pediatricians with special competence in normal and abnormal child development, including learning. Active pediatric participation may prevent further proliferation of undocumented diagnostic and therapeutic programs for learning disabled and other handicapped children. A definite need exists for a close primary doctor-patient relationship, and this does not have to be abandoned because other professionals become involved. An essential part of the total developmental disabilities evaluation is the assessment of parents' attitudes and their ability to understand and cope with the information presented to them. Maladaptive parental patterns should be considered secondary to the child's disability, rather than a causative factor, until proven otherwise. Regardless of the diagnosis, parents' fears must be put in perspective and their guilt dissipated when the results of the evaluation are presented to them. (71 refs.)

Department of Pediatrics
Saint Barnabas Medical Center
Livingston, New Jersey

2699 **MCWILLIAMS, BETTY JANE.** Various aspects of parent counseling. In: Webster, E. J., ed. *Professional Approaches with Parents of Handicapped Children.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 2, p. 27-64.

The term counseling has a much broader meaning than is suggested by current usage, and it may be applied accurately to many aspects of professional-parent interaction involving a wide variety of situations, needs, and techniques. Strictly speaking, every professional who interacts with parents and children becomes a counselor. The role may vary from parent to parent, and the methodology should be based upon the clinician's assessment of the parents' requirements at the given time. In every encounter, the child's primary problem must be identified; the information with which the parents will handle it must be decided upon; a method for imparting the information must be selected and applied; the effectiveness of the approach must be assessed; and any additional requirements must be determined. The basic task is always the same, but the way it is approached will depend ultimately upon the clinician's insights, the therapeutic goals, and the collateral services available. Parent's needs will change over time as they are subjected to different stresses in relationship to their handicapped child, and the clinician must take these into account.

Cleft Palate Center
University of Pittsburgh
Pittsburgh, Pennsylvania

2700 The State Directors of Special Education: a summary of descriptive information collected by the National Office, 1976. Washington, D.C.: National Association of State Directors of Special Education, 1976. 29 p. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.83, plus postage. (HC not available from EDRS.) Order No. ED131627.

Characteristics of State Directors of Special Education (SDSE) in the 50 states, Puerto Rico, Guam and the Bureau of Indian Affairs are presented, based on 1976 information from questionnaires received from SDSE by the National Association of State Directors of Special Education. The data, presented in 26 tables, indicate that since the last survey in 1973-74, SDSEs have decreased in average years of experience from 6 to 5 years. Increases have been recorded in average salary from $19,540 to $24,500, in the average size of staff supervised from 8.0 to 11.4 persons, and in the percentage of SDSEs with a doctorate degree from 21.2 to 37.0 percent. Other updated information in the tables on SDSEs include their educational backgrounds, persons to whom they report, and the number of hours they work per week.

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